TOSHIBA 2000
Portable Personal Computer
User's Manual

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TOSHIBA 2000 Portable Personal Computer User's Manual

First edition January 2002

Disclaimer

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FCC information

Product Name : *Portégé 2000*

Model number : *PP200*

FCC notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: *Only peripherals complying with the FCC class B limits may be attached to this equipment. Operation with non-compliant peripherals or peripherals not recommended by TOSHIBA is likely to result in interference to radio and TV reception. Shielded cables must be used between the external devices and the computer's external monitor port, USB port and microphone jack. Changes or modifications made to this equipment, not expressly approved by TOSHIBA or parties authorized by TOSHIBA could void the user's authority to operate the equipment. The modular cable that comes with the computer must be used to connect a modem. Connect the end of the modular cable with the core to the computer.*

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Contact

Address: TOSHIBA America Information Systems, Inc.
9740 Irvine Boulevard
Irvine, California 92618-1697

Telephone: (949) 583-3000

EU Declaration of Conformity

TOSHIBA declares, that the product: PP200* conforms to the following Standards:

Supplementary Information: "The product complies with the requirements of the Low Voltage Directive 73/23/EEC, the EMC Directive 89/336/EEC and/or the R&TTE Directive 1999/05/EEC."

This product is carrying the CE-Mark in accordance with the related European Directives. Responsible for CE-Marking is TOSHIBA Europe, Hammfelddamm 8, 41460 Neuss, Germany.

VCCI Class B Information

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Modem warning notice

Conformity Statement

The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Network Compatibility Statement

This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements conditional in EG 201 121.

Germany	ATAAB AN005,AN006,AN007,AN009,AN010 and DE03,04,05,08,09,12,14,17
Greece	ATAAB AN005,AN006 and GR01,02,03,04
Portugal	ATAAB AN001,005,006,007,011 and P03,04,08,10
Spain	ATAAB AN005,007,012, and ES01
Switzerland	ATAAB AN002
All other countries/regions	ATAAB AN003,004

Specific switch settings or software setup are required for each network, please refer to the relevant sections of the user guide for more details.

The hookflash (timed break register recall) function is subject to separate national type approvals. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

Japan regulations

Region selection

If you are using the computer in Japan, technical regulations described in the Telecommunications Business Law require that you select the Japan region mode. It is illegal to use the modem in Japan with any other selection.

Redial

Up to two redial attempts can be made. If more than two redial attempts are made, the modem will return **`Black Listed`**. If you are experiencing problems with the Black Listed code, set the interval between redials at one minute or longer.

Japan's Telecommunications Business Law permits up to two redials on analogue telephones, but the redials must be made within a total of three minutes.

The internal modem is approved by Japan Approvals Institute for Telecommunications Equipment.

A00-0940JP

Pursuant to FCC CFR 47, Part 68:

When you are ready to install or use the modem, call your local telephone company and give them the following information:

- The telephone number of the line to which you will connect the modem
- The registration number that is located on the device

The FCC registration number of the modem will be found on either the device which is to be installed, or, if already installed, on the bottom of the computer outside of the main system label.

- The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.

The modem connects to the telephone line by means of a standard jack called the USOC RJ11C.

Type of service

Your modem is designed to be used on standard-device telephone lines. Connection to telephone company-provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs. If you have any questions about your telephone line, such as how many pieces of equipment you can connect to it, the telephone company will provide this information upon request.

Telephone company procedures

The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations, or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice in writing to allow you to make any changes necessary to maintain uninterrupted service.

If problems arise

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. In the event repairs are ever needed on your modem, they should be performed by TOSHIBA Corporation or an authorized representative of TOSHIBA Corporation.

Disconnection

If you should ever decide to permanently disconnect your modem from its present line, please call the telephone company and let them know of this change.

Fax branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity or individual sending the message and the telephone number of the sending machine or such business, other entity or individual. In order to program this information into your fax modem, you should complete the setup of your fax software before sending messages.

Instructions for IC CS-03 certified equipment

1 The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

> ***CAUTION:*** *Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.*

2 The user manual of analog equipment must contain the equipment's Ringer Equivalence Number (REN) and an explanation notice similar to the following:

The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.

NOTICE: *The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.*

3 The standard connecting arrangement (telephone jack type) for this equipment is jack type(s): USOC RJ11C.

The IC registration number of the modem is shown below.

Canada: 1353 11026A

Notes for Users in Australia and New Zealand

Modem warning notice for Australia

Modems connected to the Australian telecoms network must have a valid Austel permit. This modem has been designed to specifically configure to ensure compliance with Austel standards when the country/region selection is set to Australia. The use of other country/region setting while the modem is attached to the Australian PSTN would result in you modem being operated in a non-compliant manner. To verify that the country/region is correctly set, enter the command ATI which displays the currently active setting.

To set the country/region permanently to Australia, enter the following command sequence:

```
AT%TE=1
ATS133=1
AT&F
AT&W
AT%TE=0
ATZ
```

Failure to set the modem to the Australia country/region setting as shown above will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this equipment and the Telecoms Act 1991 prescribes a penalty of $12,000 for the connection of non-permitted equipment.

Notes for use of this device in New Zealand

- The grant of a Telepermit for a device in no way indicates Telecom acceptance of responsibility for the correct operation of that device under all operating conditions. In particular the higher speeds at which this modem is capable of operating depend on a specific network implementation which is only one of many ways of delivering high quality voice telephony to customers. Failure to operate should not be reported as a fault to Telecom.
- In addition to satisfactory line conditions a modem can only work properly if:

  a/ it is compatible with the modem at the other end of the call and

  b/ the application using the modem is compatible with the application at the other end of the call - e.g., accessing the Internet requires suitable software in addition to a modem.
- This equipment shall not be used in any manner which could constitute a nuisance to other Telecom customers.
- Some parameters required for compliance with Telecom's PTC Specifications are dependent on the equipment (PC) associated with this modem. The associated equipment shall be set to operate within the following limits for compliance with Telecom Specifications:

  a/ There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and

  b/ The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next.

  c/ Automatic calls to different numbers shall be not less than 5 seconds apart.
- Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.
- The correct settings for use with this modem in New Zealand are as follows:

  ATB0 (CCITT operation)

  AT&G2 (1800 Hz guard tone)

  AT&P1 (Decadic dialing make-break ratio =33%/67%)

  ATS0=0 (not auto answer)

  ATS10=less than 150 (loss of carrier to hangup delay, factory default of 15 recommended)

  ATS11=90 (DTMF dialing on/off duration=90 ms)

  ATX2 (Dial tone detect, but not (U.S.A.) call progress detect)

- When used in the Auto Answer mode, the S0 register must be set with a value of 3 or 4. This ensures:

  (a) a person calling your modem will hear a short burst of ringing before the modem answers. This confirms that the call has been successfully switched through the network.

  (b) caller identification information (which occurs between the first and second ring cadences) is not destroyed.

- The preferred method of dialing is to use DTMF tones (ATDT...) as this is faster and more reliable than pulse (decadic) dialing. If for some reason you must use decadic dialing, your communications program must be set up to record numbers using the following translation table as this modem does not implement the New Zealand "Reverse Dialing" standard.

  Number to be dialed: 0 1 2 3 4 5 6 7 8 9

  Number to program into computer: 0 9 8 7 6 5 4 3 2 1

  Note that where DTMF dialing is used, the numbers should be entered normally.

- The transmit level from this device is set at a fixed level and because of this there may be circumstances where the performance is less than optimal. Before reporting such occurrences as faults, please check the line with a standard Telepermitted telephone, and only report a fault if the phone performance is impaired.

- It is recommended that this equipment be disconnected from the Telecom line during electrical storms.

- When relocating the equipment, always disconnect the Telecom line connection before the power connection, and reconnect the power first.

- This equipment may not be compatible with Telecom Distinctive Alert cadences and services such as FaxAbility.

  NOTE THAT FAULT CALL OUTS CAUSED BY ANY OF THE ABOVE CAUSES MAY INCUR A CHARGE FROM TELECOM

General conditions

As required by PTC 100, please ensure that this office is advised of any changes to the specifications of these products which might affect compliance with the relevant PTC Specifications.

The grant of this Telepermit is specific to the above products with the marketing description as stated on the Telepermit label artwork. The Telepermit may not be assigned to other parties or other products without Telecom approval.

A Telepermit artwork for each device is included from which you may prepare any number of Telepermit labels subject to the general instructions on format, size and colour on the attached sheet.

The Telepermit label must be displayed on the product at all times as proof to purchasers and service personnel that the product is able to be legitimately connected to the Telecom network.

The Telepermit label may also be shown on the packaging of the product and in the sales literature, as required in PTC 100.

The charge for a Telepermit assessment is $337.50. An additional charge of $337.50 is payable where an assessment is based on reports against non-Telecom New Zealand Specifications. $112.50 is charged for each variation when submitted at the same time as the original.

An invoice for $NZ1237.50 will be sent under separate cover.

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Preface

Congratulations on your purchase of the TOSHIBA 2000 computer. This powerful, lightweight notebook computer is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your 2000 computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over the *Introduction* and *The Grand Tour* chapters to familiarize yourself with the computer's features, components and accessory devices. Then read *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to look over the *Special features* section of the *Introduction*, to learn about features that are uncommon or unique to the computers and carefully read *HW Setup and Passwords*. If you are going to install PC cards or connect external devices such as a monitor, be sure to read Chapter 8, *Optional Devices*.

Manual contents

This manual is composed of nine chapters, nine appendixes, a glossary, and an index.

Chapter 1, *Introduction*, is an overview of the computer's features, capabilities, and options.

Chapter 2, *The Grand Tour*, identifies the components of the computer and briefly explains how they function.

Chapter 3, *Getting Started*, provides a quick overview of how to begin operating your computer and gives tips on safety and designing your work area.

Chapter 4, *Operating Basics*, includes instructions on using the following devices: Touch Pad, external diskette drive, wireless communication features, LAN and internal modem.

Chapter 5, *The Keyboard*, describes special keyboard functions including the keypad overlay and hotkeys.

Chapter 6, *Power and Power-Up Modes*, gives details on the computer's power resources and battery save modes.

Chapter 7, *HW Setup and Passwords*, explains how to configure the computer using the HW Setup program. It also tells how to set a password.

Chapter 8, *Optional Devices*, describes the optional hardware available.

Chapter 9, *Troubleshooting*, provides helpful information on how to perform some diagnostic tests, and suggests courses of action if the computer doesn't seem to be working properly.

The Appendixes provide technical information about your computer.

The Glossary defines general computer terminology and includes a list of acronyms used in the text.

The Index quickly directs you to the information contained in this manual.

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **Enter** identifies the Enter key.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (+). For example, **Ctrl + C** means you must hold down **Ctrl** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

ABC When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the type face you see to the left.

Display

ABC Names of Windows® or icons or text generated by the computer that appears on its display screen is presented in the type face you see to the left.

Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

> ***CAUTION:*** *Pay attention! A caution informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.*

> ***NOTE:*** *Please read. A note is a hint or advice that helps you make best use of your equipment.*

General Precautions

TOSHIBA computers are designed to optimize safety, minimize strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to the computer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

Stress injury

Carefully read the *Instruction Manual for Safety & Comfort*. It contains information on prevention of stress injuries to your hands and wrists than can be caused by extensive keyboard use. Chapter 3, *Getting Started*, also includes information on work space design, posture and lighting that can help reduce physical stress.

Heat injury

Avoid prolonged physical contact with the computer. If the computer is used for long periods, its surface can become very warm. While the temperature will not feel hot to the touch, if you maintain physical contact with the computer for a long time (if you rest the computer on your lap or if you keep your hands on the palm rest, for example) your skin might suffer low-heat injury.

Also, if the AC adaptor has been used for a long time, avoid prolonged physical contact with the AC adaptor. It can become very warm.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to strong impact. Excessive pressure or impact can cause damage to computer components or otherwise cause malfunctions.

PC card overheating

Some PC cards can become hot with prolonged use. Overheating of a PC card can result in errors or instability in the PC card operation. Also be careful when you remove a PC card that has been used for a long time.

Chapter 1

Introduction

This chapter provides an equipment checklist, and it identifies the computer's features, options and accessories.

> ***CAUTION:*** *Some of the features described in this manual may not function properly if you use an operating system that was not preinstalled by TOSHIBA.*

Equipment checklist

Carefully unpack your computer. Save the box and packing materials for future use.

Check to make sure you have all the following items:

- PORTÉGÉ 2000 Portable Personal Computer
- Universal AC Adaptor and power cord
- Modular cable

The computer is configured with one of three sets of preinstalled software, manual packages and auxiliary media depending on your choice of operating system.

"Windows XP" is the Microsoft® Windows® XP Professional operating system.

"Windows 2000" is the Microsoft® Windows® 2000 Professional operating system.

Windows XP

- The following software is preinstalled:
  - Microsoft® Windows XP Professional
  - TOSHIBA Wireless LAN Driver
  - TOSHIBA Software Modem Driver
  - TOSHIBA SD card Driver
  - TOSHIBA Utilities
  - TOSHIBA Hotkey Utility for Display Devices
  - TOSHIBA Power Saver
  - TOSHIBA Moblile Extention

- TOSHIBA Common Modules
- TOSHIBA Controls
- TOSHIBA Console
- TOSHIBA Client Manager
- TOSHIBA Network Device Switch
- SPANworks 2000 Professional
- TOSHIBA Skins for Windows Media Player
- Online manual

◆ Documentation:

- *2000 Portable Personal Computer User's Manual*
- Microsoft Windows XP Professional manual package
- *Instruction Manual for Safety & Comfort*
- End User License Agreement
- International Limited Warranty (ILW) Instruction
  (This instruction is included only with computers sold in ILW supported areas.)

◆ Product Recovery CD-ROM (contains TOSHIBA Management Console, which is not preinstalled)

Windows 2000 Service Pack 2

◆ Use the Product Recovery CD-ROM to install the following software. Refer to the *Windows XP Professional/2000 setup* section in Chapter 3, *Getting Started*.

- Microsoft® Windows 2000
- The same preinstalled software that is supplied with Windows XP Professional.

◆ Documentation:

- Microsoft Windows 2000 manual package
- The same documentation that is supplied with Windows XP Professional.

If any of the items are missing or damaged, contact your dealer immediately.

Features

The computer uses TOSHIBA's advanced Large Scale Integration (LSI), Complementary Metal-Oxide Semiconductor (CMOS) technology extensively to provide compact size, minimum weight, low power usage, and high reliability. This computer incorporates the following features and benefits:

Processor

Built-in	Ultra Low Voltage Mobile Intel® Pentium® III processor 750 MHz-M with Enhanced Intel® SpeedStep™ Technology incorporates a math coprocessor and 32 KB cache.

Memory

Built-in	256 MB of memory is installed on the main board.
Slots	A 256 MB memory module can be installed in the memory slot for a maximum of 512 MB system memory.
Level 2 cache	A 512 KB level 2 cache is provided to maximize performance.
Video RAM	16 MB of RAM is provided for video display. (occupied from system memory)

Disks

Built-in	Hard disk 20 billion bytes (18.62 GB)

Display

The computer's LCD panel supports high-resolution video graphics. The screen can be set at a wide range of viewing angles for maximum comfort and readability.

Built-in	12.1" XGA-TFT, 1024 horizontal x 768 vertical pixels, up to 16 M colors
Graphics controller	A 128-bit graphics controller maximizes display performance. Refer to Appendix B for more information.

Keyboard

Built-in	84 keys or 85 keys, compatible with IBM enhanced keyboard, embedded numeric overlay, dedicated cursor control, and keys.

Touch pad

Built-in	A touch pad and control buttons in the palm rest enable control of the on-screen pointer and scrolling of windows.

Power

Battery Pack	The computer is powered by one rechargeable lithium-ion polymer Battery Pack.
RTC battery	The internal RTC battery backs up the Real Time Clock (RTC) and calendar.
AC adaptor	The universal AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord. Because it is universal, it can receive a range of AC voltage between 100 and 240 volts.

Ports

Headphone	Enables connection of a stereo headphone
Microphone	Enables connection of a monaural microphone
Infrared	This infrared port is compatible with Infrared Data Association (IrDA 1.1) Fast InfraRed (FIR) standards. It enables cableless 4 Mbps data transfer with IrDA 1.1 compatible external devices.
External monitor	15-pin, analog VGA port supports VESA DDC2B compatible functions.
Docking	Special port for connecting an optional Slim Port Replicator or High Capacity 2nd Battery Pack.
Universal Serial Bus	Two Universal Serial Bus (USB) enables chain connection of a number of USB-equipped devices to one port on your computer.

Slots

PC card	A PC card slot accommodates: One 5 mm Type II Refer to Chapter 8, *Optional Devices*, for details.
SD card	The SD card slot accommodates: SD cards Refer to Chapter 8, *Optional Devices*, for details.

Multimedia

Sound System	Windows Sound System compatible sound system provides internal speaker as well as jacks for an external microphone and headphone.

Communications

Modem	An internal modem provides capability for data and fax communication. It supports V.90. Refer to Appendix E. The speed of data transfer and fax depends on analog telephone line conditions. It has a modem jack for connecting to a telephone line. It is preinstalled as a standard device in some markets.
LAN	The computer is equipped with a LAN card that supports Ethernet LAN (10 Mbit/s, 10BASE-T) and Fast Ethernet LAN (100 Mbit/s, 100BASE-Tx). It is preinstalled as a standard device in some markets.
Wireless LAN	In some markets, the computer is equipped with a Wireless LAN mini-PCI card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B). It supports data transfer up to 11 Mbit/s. It has Frequency Channel Selection (2.4 GHz) and allows roaming over multiple channels.
TOSHIBA Console button	Press this button to launch an application automatically. In Windows XP/2000 the default is TOSHIBA Console. Use the TOSHIBA Control to associate an application to this button.
Internet button	Press this button to launch an Internet browser. See Chapter 2, *Grand Tour*, for details.

Security

Security lock slot	Connects an optional security lock to anchor the computer to a desk or other large object

Software

Operating System	One of the following operating systems are available Windows XP/2000. Refer to the preinstalled software section at the front of this chapter.
TOSHIBA Utilities	A number of utilities and drivers are preinstalled to make your computer more convenient to use. Refer to the *Utilities* section in this chapter.
Plug and Play	When you connect an external device to the computer or when you install a component, Plug and Play capability enables the system to recognize the connection and make the necessary configurations automatically.

Special features

The following features are either unique to TOSHIBA computers or are advanced features, which make the computer more convenient to use.

Hotkeys	Key combinations let you quickly modify the system configuration directly from the keyboard without running a system configuration program.
Keypad overlay	Gray keys with gray lettering make up the keypad overlay, which lets you use the keyboard for ten-key operations or cursor control.
Display automatic power off	This feature automatically cuts off power to the internal display when there is no keyboard input for a time specified. Power is restored when any key is pressed. You can specify the time in the *Turn off monitor* item of the *Power Save Mode* window in Power Saver.
HDD automatic power off	This feature automatically cuts off power to the hard disk drive when it is not accessed for a time specified. Power is restored when the hard disk is accessed. You can specify the time in the *Turn off hard disks* item of the *Power Save Mode* window in Power Saver.

System automatic power off	This feature automatically turns off power to the system when there is no input for a time specified. You can specify the time in the *System standby* or *System hibernate* item of the *System Power Mode* window in Power Saver.
Battery save mode	This feature lets you save battery power. You can specify the Power Save Mode in the *Running on batteries* item of the *Power Save Modes* window in Power Saver.
Power on password	Two levels of password security are available: supervisor and user. This feature prevents unauthorized access to your computer.
Instant security	A hotkey function blanks the screen and disables the computer providing quick and easy data security.
Panel power on/off	This feature turns power to the computer off when the display panel is closed and turns it back on when the panel is opened. You can specify the setting in the *When I close the lid* item of the *System Power Mode* window in Power Saver.
Auto power on	This feature lets you set a time and date for the computer to turn on automatically. The feature is useful for receiving remote communications while you are asleep or away. You can specify the setting in Scheduled Tasks.
Standby	If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.
Hibernation	This feature lets you turn off the power without exiting from your software. The contents of main memory is saved to the hard disk, when you turn on the power again, you can continue working right where you left off.

Heat dispersal — To protect from overheating, the CPU has an internal temperature sensor. If the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. Use the *Fan* item of the *Power Save Modes* window in Power Saver.

Maximum Performance	Turns on fan first, then if necessary lowers CPU processing speed.
Performance	Uses a combination of fan and lowering the CPU processing speed.
Battery optimized	Lowers the CPU processing speed first, then if necessary turns on the fan.

Utilities

This section describes preinstalled utilities and tells how to start them. For details on operations, refer to each utility's online manual, help files or readme files.

TOSHIBA Power Saver — To access this power savings management program in Windows 2000, open the Control Panel and double-click the TOSHIBA Power Saver icon. In Windows XP, open the Control Panel, click Performance and Maintenance and click the TOSHIBA Power Saver icon.

HW Setup — This program lets you customize your hardware settings according to the way you work with your computer and the peripherals you use. To start the utility in Windows 2000, open the Control Panel and double-click the TOSHIBA HW Setup icon. In Windows XP, open the Control Panel, click Printers and Other Hardware and click the TOSHIBA HW Setup icon.

Fn-esse — This Windows program lets you define your own "short-cut" keys to quickly launch applications and speed your work in Windows. To start the utility, click the Windows Start button, point to Programs (Windows XP only, point to All Programs), point to TOSHIBA Utilities and click Fn-esse.

Supervisor Password Utility for Windows — This utility for Windows lets you register a Supervisor Password, which restricts access to HW Setup.

Display Driver for Windows	The display driver enables simultaneous display on the internal LCD, and on an external computer monitor. To enable this function, use the Display Properties dialogue box.
Sound drivers	A broad range of audio controls are possible through the ALi sound driver, including Software Synthesize, Mic volume and Power management. Click Control Panel and click the ALi sound setup icon to adjust power management settings. For other sound settings, use the Windows Device Manager, Multimedia panel or volume control dial.
LAN drivers	This preinstalled driver makes the computer LAN-ready for a computer running Windows 2000. To make LAN settings, click Start, point to Settings, click Control Panel and double-click the Network icon.
TOSHIBA Accessibility	This utility lets you make the Fn key sticky, that is, you can press it once, release it, and they press an "F number" key. The Fn key remains active until another key is pressed.
Hotkey utility	This utility lets you display or hide a confirmation message when you press Fn + F3 or Fn + F4.
TOSHIBA Controls	Use this utility to customize TOSHIBA Console button settings.
TOSHIBA Console	TOSHIBA Console is a graphical user interface that provides easy access to help and services. It is the default function launched by the TOSHIBA Console button.

Options

You can add a number of options to make your computer even more powerful and convenient to use. The following options are available:

Memory expansion	One memory expansion slot is available for installing a 256 MB memory module. The modules are SD Random Access Memory (SD-RAM).
Battery Pack	An Battery Pack (PA3154U) can be purchased from your TOSHIBA dealer. The Battery Pack is identical to the one that came with your computer. Use it as a spare or replacement.
High Capacity 2nd Battery Pack	This Battery Pack (PA3155U) increases your computer's operating time when a main Battery Pack is also installed.
Universal AC Adaptor	If you use your computer at more than one site, it may be convenient to purchase an additional Universal AC Adaptor for each site so you will not have to carry the adaptor with you.
USB FDD Kit	A 3 1/2" diskette drive accommodates 1.44-megabyte or 720-kilobyte diskettes. It connects to a USB port. (Windows XP does not support 720-kilobyte diskettes.)
Battery Charger	The Battery Charger lets you charge extra batteries outside the computer.
Security lock	A slot is available to attach a security cable to the computer to deter theft.
Slim Port Replicator	The Slim Port Replicator provides the following: an external monitor port, four USB ports, a port for charging a High Capacity 2nd Battery Pack, a LAN jack and a DC-IN socket.

The Grand Tour

This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.

Front with the display closed

Figure 2-1 shows the computer's front with its display panel in the closed position.

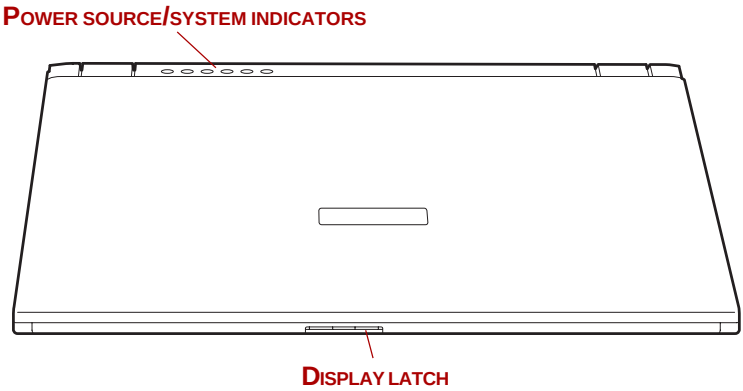


Figure 2-1 Front of the computer with display closed

Display latch — This latch secures the LCD panel in its closed position. Push the latch to open the display.

Power source/ system indicators — LEDs let you monitor the status of various computer functions. Details are given in the *Indicators* section.

Left side

Figure 2-2 shows the computer's left side.

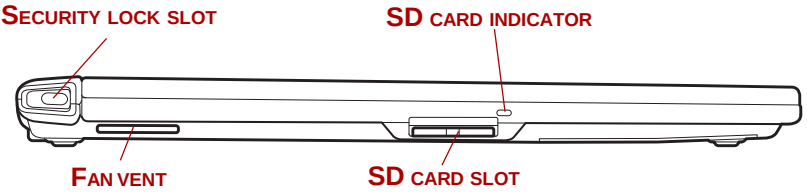


Figure 2-2 The left side of the computer

Security lock slot A security cable attaches to this slot. The optional security cable anchors your computer to a desk or other large object to deter theft.

Fan vent Provides air flow for the fan.

***CAUTION:** Be careful not to block the fan vent. Also be careful to keep foreign objects out of the vents. A pin or similar object can damage the computer's circuitry.*

SD card slot This slot lets you transfer data from the device to your computer.

***CAUTION:** Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.*

SD card indicator This indicator glows green when the computer is accessing the SD card Slot.

Right side

Figure 2-3 shows the computer's right side.

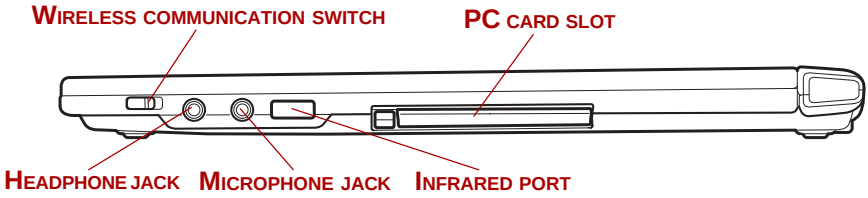


Figure 2-3 The right side of the computer

Wireless communication switch

Slide this switch to the right to turn on Wireless LAN. Slide it to the left to turn off the functions. (This switch is only on models with Wireless LAN functions.)

Headphone jack

A standard 3.5 mm mini headphone jack enables connection of a stereo headphone (16 ohm minimum) or other device for audio output. When you connect headphones, the internal speaker is automatically disabled.

Microphone jack

A standard 3.5 mm mini microphone jack enables connection of a monaural microphone or other device for audio input.

Infrared port

This infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.152 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.

PC card slot

A PC card slot can accommodate one 5 mm PC card (Type II). The slot supports 16-bit PC cards and CardBus PC cards.

CAUTION: *Keep foreign objects out of the PC card slot. A pin or similar object can damage the computer's circuitry.*

Back side

Figure 2-4 shows the computer's back side.

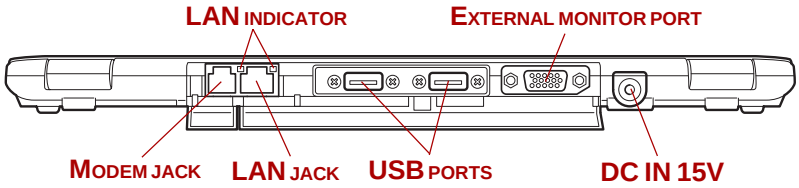


Figure 2-4 The computer's back side

Modem jack

In areas where an internal modem is installed as standard equipment, there is a modem jack that lets you use a modular cable to connect the modem directly to a telephone line. The modem is not supported in some marketing regions.

CAUTIONS: *1. In case of a lightning storm, unplug the modem cable from the telephone jack.*

2. Do not connect the modem to a digital telephone line. A digital line will damage the modem.

LAN jack

This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx).

LAN indicator

This indicator glows green when the computer is accessing the LAN.

Universal Serial Bus port

The Universal Serial Bus (USB) port enables chain connection of a number of USB-equipped devices to one port on your computer. For example, you might connect a USB-HUB to the computer, then connect a keyboard to the USB-HUB and a mouse to the keyboard.

External monitor port

This 15-pin port lets you connect an external monitor.

DC IN 15V

The AC adaptor connects to this socket. Use only the model of AC adaptor that comes with the computer. Using the wrong adaptor can damage your computer.

Underside

Figure 2-5 shows the underside of the computer. Make sure the display is closed before turning over your computer.

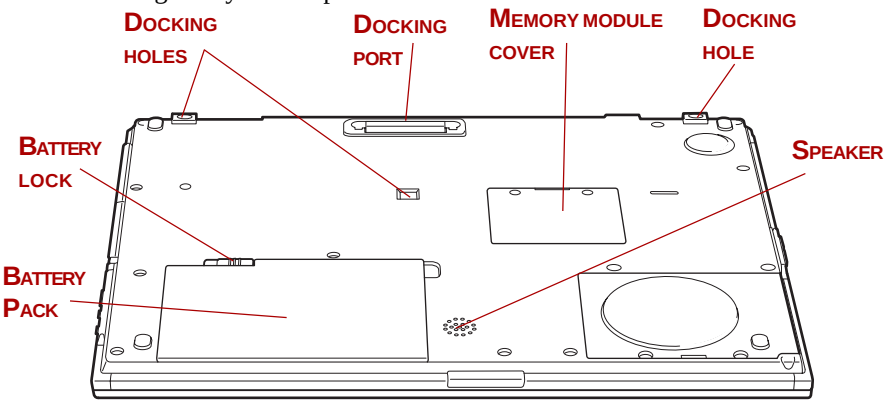


Figure 2-5 The underside of the computer

Docking port Use this port to connect an optional Slim Port Replicator or High Capacity 2nd Battery Pack.

***CAUTION:** Keep foreign objects out of the docking port. A pin or similar object can damage the computer's circuitry.*

Docking holes These holes ensure a proper connection between the computer and an optional High Capacity 2nd Battery Pack.

Expansion memory socket Use this socket to install a memory module to increase your computer's memory by 256 MB. Refer to the *Memory expansion* section in Chapter 8, *Optional Devices.*

Battery Pack The Battery Pack powers the computer when the AC adaptor is not connected. The *Batteries* section in Chapter 6, *Power and Power-Up Modes*, describes how to access the Battery Pack. Battery Packs can be purchased from your TOSHIBA dealer to extend the computer's battery operating time.

Battery lock A sliding lock prevents inadvertent release of the Battery Pack.

Speaker The speaker emits sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.

Front with the display open

Figure 2-6 shows the front of the computer with the display open. To open the display, push the display latch on the front of the computer and lift the display up. Position the display at a comfortable viewing angle.

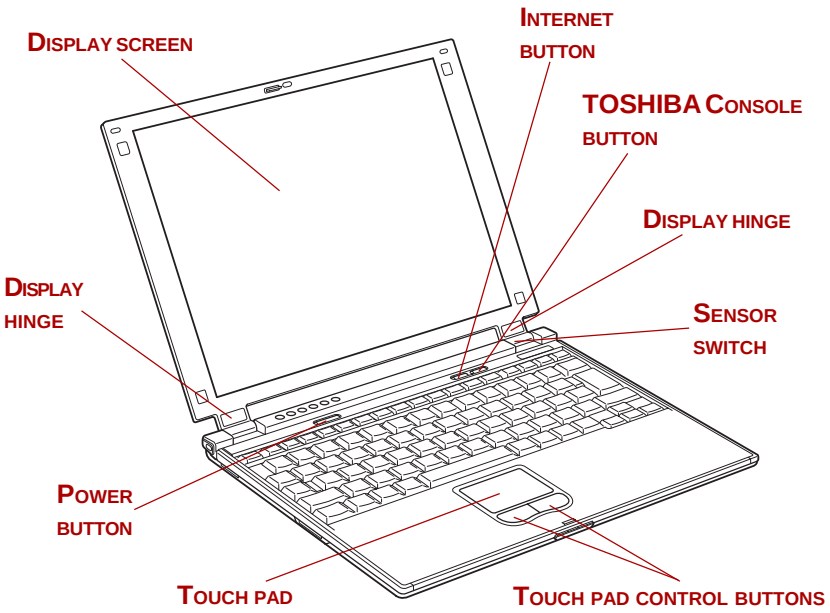


Figure 2-6 The front with the display open

Display screen The full-color LCD displays high-contrast text and graphics and is compatible with the industry standard Video Graphics Array (VGA). The LCD consists of up to 1024 × 768 pixels or dots. The computer has a Thin-Film Transistor (TFT) display. Refer to Appendix B.

When the computer operates on power through the AC adaptor, the display screen's image will be somewhat brighter than when it operates on battery power. The lower brightness level is intended to save battery power.

Display hinge The display hinge holds the display screen at easy-to-view angles.

Power button Press the power button to turn the computer's power on and off.

Internet button Press this button to launch an Internet browser. If the computer's power is off, you can press this button to turn on the computer's power and launch the browser automatically in one step.

TOSHIBA Console button Press this button to launch an application automatically. The default is TOSHIBA Console.

Touch pad A Touch pad located in the center of the palm rest is used to control the on-screen pointer. Refer to the *Using the Touch pad* section in Chapter 4, *Operating Basics*.

Touch pad control buttons Control buttons below the Touch pad let you select menu items or manipulate text and graphics designated by the on-screen pointer.

Sensor switch This switch shuts down the computer when you close the cover and the panel power on/off feature is enabled.

Indicators

Figure 2-7 shows the indicators, which light when various computer operations are in progress.

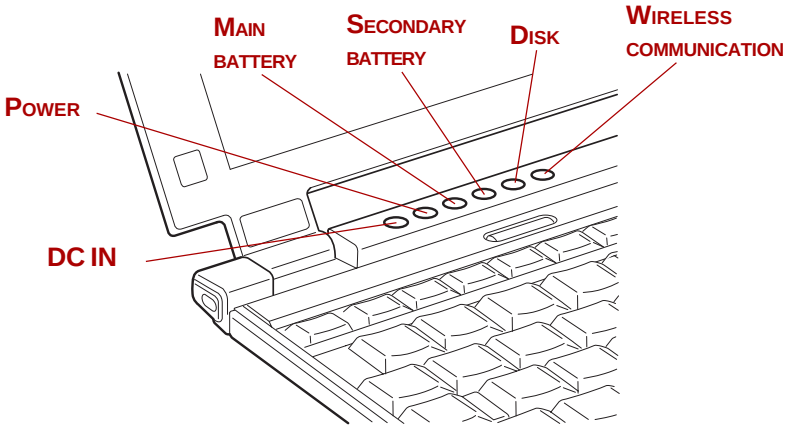


Figure 2-7 The power source/system indicators

Power source/system indicators

DC IN

The **DC IN** indicator glows green when DC power is supplied from the AC power adaptor. If the adaptor's output voltage is abnormal or if the power supply malfunctions, this indicator flashes orange.

Power

The **Power** indicator glows green when the computer is on. If you turn off the computer in Resume mode, this indicator blinks orange (one second on, two seconds off) while the computer shuts down.

Main battery

The **Main battery** indicator shows the condition of the charge. Green means fully charged and orange means being charged. Refer to Chapter 6, *Power and Power-Up Modes*.

Secondary battery

The **Secondary battery** indicator shows the condition of the charge of an optional High Capacity 2nd Battery Pack. Green means fully charged and orange means being charged. Refer to Chapter 6, *Power and Power-Up Modes*.

Disk

The **Disk** indicator glows green when the computer is accessing a disk drive.

Wireless communication

The **Wireless communication** indicator lights when the Wireless LAN function is turned on. (This indicator is used only models with Wireless LAN functions.)

The figures below show the positions of the keypad overlay indicators and the CapsLock indicator.

When the F10 key indicator glows, the keypad overlay lets you control the cursor. When the F11 key indicator glows, the keypad overlay lets you enter numbers.

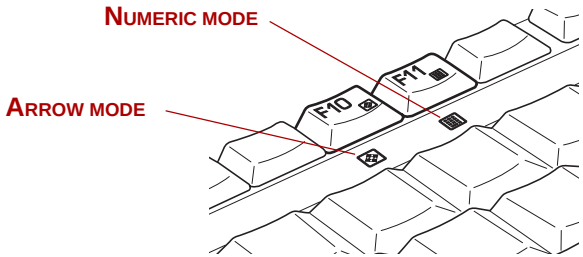


Figure 2-8 Keypad overlay indicators

When the CapsLock indicator glows, the keyboard is in all-caps mode.

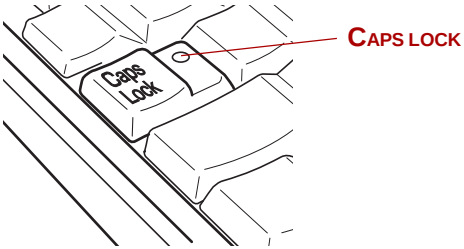


Figure 2-9 CapsLock indicator

Keyboard indicator

Caps Lock This indicator glows green when the alphabet keys are locked in uppercase.

Arrow mode

When the **Arrow mode** indicator lights green, you can use the keypad overlay (white labeled keys) as cursor keys. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

Numeric mode

You can use the keypad overlay (white labeled keys) for numeric input when the **Numeric mode** indicator lights green. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

AC adaptor

The AC adaptor converts AC power to DC power and reduces the voltage supplied to the computer. It can automatically adjust to any voltage from 100 to 240 volts and to a frequency of either 50 or 60 hertz, enabling you to use the computer in almost any region.

To recharge the battery, simply connect the AC adaptor to a power source and the computer. See Chapter 6 *Power and Power-Up Modes* for details.

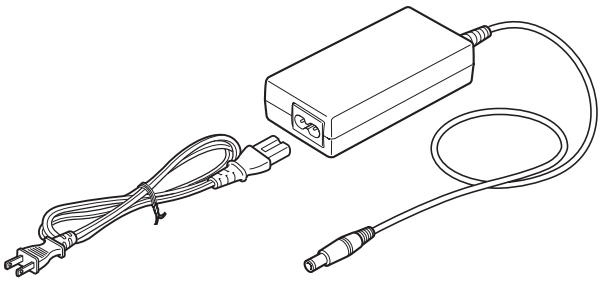


Figure 2-10 The AC adaptor

***CAUTION:** Use only the AC adaptor that came with the computer or an equivalent optional adaptor. Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case.*

Chapter 3

Getting Started

This chapter provides basic information to get you started using your computer. It covers the following topics:

- Setting up your work space — for your health and safety

  NOTE: *Be sure also to read* Instruction Manual for Safety & Comfort. *This guide, which is included with the computer, explains product liability.*

- Opening the display
- Connecting the AC adaptor
- Turning on the power
- Windows XP Professional/2000 setup
- Turning off the power
- Restarting the computer
- Restoring the Windows system

If you are a new user, follow the steps in each section of this chapter as you prepare to operate your computer.

NOTE: *All users should be sure to carefully read the sections* Windows XP Professional/2000 setup, *which describe actions to take when you turn on the power for the first time.*

Setting up your work space

Establishing a comfortable work site is important for you and your computer. A poor work environment or stressful work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. Proper ambient conditions should also be maintained for the computer's operation. This section discusses the following topics:

- General conditions
- Placement of the computer and peripheral devices
- Seating and posture
- Lighting
- Work habits

General conditions

In general, if you are comfortable, so is your computer, but read the following to make sure your work site provides a proper environment.

- Make sure there is adequate space around the computer for proper ventilation.
- Make sure the AC power cord connects to an outlet that is close to the computer and easily accessible.
- The temperature should be 5 to 35 degrees Centigrade (41 to 95 degrees Fahrenheit) and the relative humidity should be 20 to 80 percent.
- Avoid areas where rapid or extreme changes in temperature or humidity may occur.
- Keep the computer free of dust, moisture, and exposure to direct sunlight.
- Keep the computer away from heat sources, such as electric heaters.
- Do not use the computer near liquids or corrosive chemicals.
- Do not place the computer near objects that create strong magnetic fields (e.g., stereo speakers).
- Do not operate the computer in close proximity to a mobile phone.

Placement of computer

Position the computer and peripheral devices to provide comfort and safety.

- Set the computer on a flat surface at a comfortable height and distance. The display should be no higher than eye level to avoid eye strain.

- Place the computer so that it is directly in front of you when you work and make sure you have adequate space to easily operate other devices.
- Allow adequate space behind the computer to let you freely adjust the display. The display should be angled to reduce glare and maximize visibility.
- If you use a paper holder, set it at about the same height and distance as the computer.

Seating and posture

The height of your chair in relation to the computer and keyboard as well as the support it gives your body are primary factors in reducing work strain. Refer to the following tips and to figure 3-1.

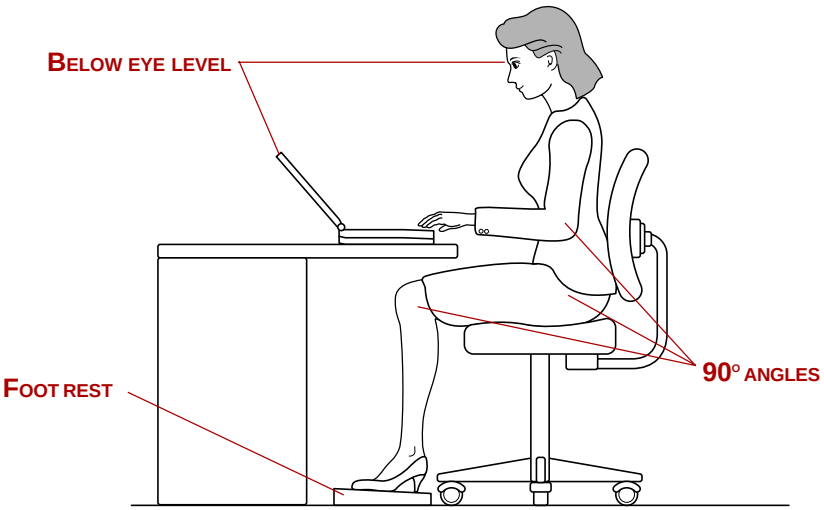


Figure 3-1 Posture and positioning of the computer

- Place your chair so that the keyboard is at or slightly below the level of your elbow. You should be able to type comfortably with your shoulders relaxed.
- Your knees should be slightly higher than your hips. If necessary, use a foot rest to raise the level of your knees to ease pressure on the back of your thighs.
- Adjust the back of your chair so it supports the lower curve of your spine.
- Sit straight so that your knees, hips and elbows form approximately 90 degree angles when you work. Do not slump forward or lean back too far.

Lighting

Proper lighting can improve legibility of the display and reduce eye strain.

- Position the computer so that sunlight or bright indoor lighting does not reflect off the screen. Use tinted windows, shades or other screen to eliminate sun glare.
- Avoid placing the computer in front of bright light that could shine directly in your eyes.
- If possible, use soft, indirect lighting in your computer work area. Use a lamp to illuminate your documents or desk, but be sure to position the lamp so that it does not reflect off the display or shine in your eyes.

Work habits

A key to avoiding discomfort or injury from repetitive strain is to vary your activities. If possible, schedule a variety of tasks into your work day. If you must spend long periods at the computer, finding ways to break up the routine can reduce stress and improve your efficiency.

- Sit in a relaxed posture. Good positioning of your chair and equipment as described earlier can reduce tension in your shoulders or neck and ease back strain.
- Vary your posture frequently.
- Occasionally stand up and stretch or exercise briefly.
- Exercise and stretch your wrists and hands a number of times during the day.
- Frequently, look away from the computer and focus your eyes on a distant object for several seconds, for example 30 seconds every 15 minutes.
- Take frequent short breaks instead of one or two long breaks, for example, two or three minutes every half hour.
- Have your eyes examined regularly and visit a doctor promptly, if you suspect you might be suffering from a repetitive strain injury.

A number of books are available on ergonomics and repetitive strain injury or repetitive stress syndrome. For more information on these topics or for pointers on exercises for such stress points as hands and wrists, please check with your library or book vendor. Also refer to the computer's *Instruction Manual for Safety & Comfort*.

Opening the display

The display panel can be rotated in a wide range of angles for optimal viewing.

1. Push down the display latch on the front of the computer to unlatch the display panel.
2. Lift the panel up and adjust it to the best viewing angle for you.

NOTE: *When you open the display, hold it with both hands and lift up slowly.*

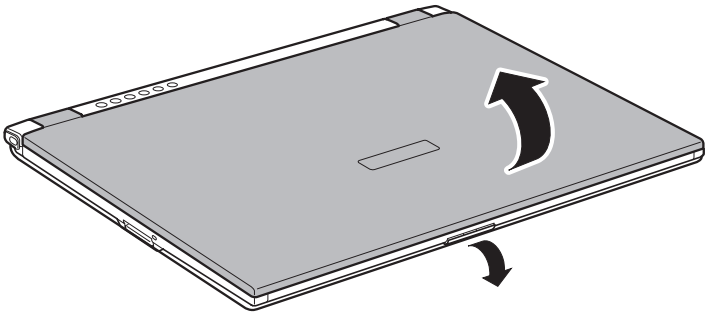


Figure 3-2 Opening the display panel

Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the Battery Pack will need to be charged before you can operate from battery power.

The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the Battery Pack, refer to Chapter 6, *Power and Power-Up Modes*.

CAUTION: *Use only the AC adaptor that came with the computer or an equivalent optional adaptor. Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case.*

1. Connect the power cord to the AC adaptor.

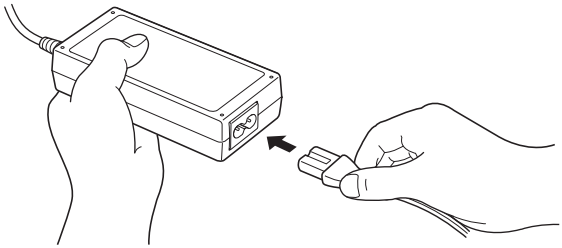


Figure 3-3 Connecting the power cord to the AC adaptor

2. Connect the AC adaptor's DC output plug to the **DC IN** port on the back of the computer.

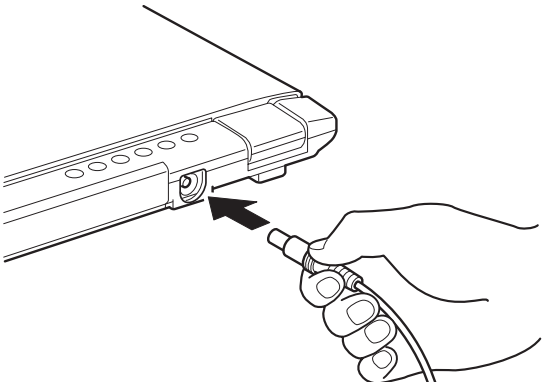


Figure 3-4 Connecting the adaptor to the computer

3. Plug the power cord into a live wall outlet. The **Battery** and **DC IN** indicator on the front of the computer should glow.

Turning on the power

This section describes how to turn on the power.

> ***NOTE:*** *After you turn on the power for the first time, do not turn it off until you have set up the operating system (OS) and the OS has started up.*

1. If the external diskette drive is connected, make sure it is empty. If a diskette is in the drive, press the eject button and remove the diskette.
2. Open the display panel.
3. Press and hold the button for two or three seconds.

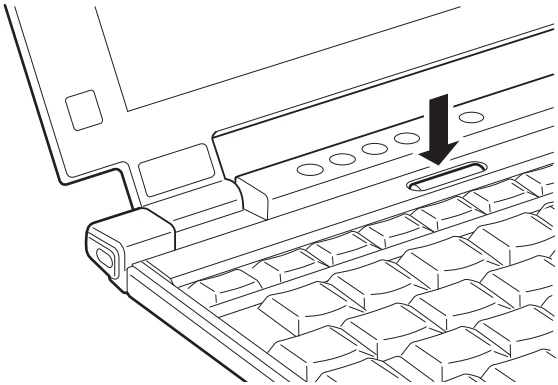


Figure 3-5 Turning on the power

Windows XP Professional/2000 setup

When you first turn on the power, the computer's initial screen is the Microsoft Windows XP Professional Startup Screen Logo.

Follow the on-screen directions.

If you ordered Windows 2000, the operating system is not preinstalled. Follow the steps below to install the Windows 2000 and TOSHIBA utilities.

1. Turn on the computer, load the Product Recovery CD-ROM in the drive and turn off the power.
2. Hold down the **C** key and turn on the power. When **In Touch with Tomorrow TOSHIBA** appears, release the **C** key.
3. Follow the on-screen instructions.

NOTE: You can get the Product key from a seal on the bottom of the computer (Windows 2000 only).

Turning off the power

The power can be turned off in one of the following modes: Shut down (Boot), Hibernation or Standby mode.

Shut Down mode (Boot mode)

When you turn off the power in Shut Down mode, no data is saved and the computer will boot to the operating system's main screen.

1. If you have entered data, save it to the hard disk or to a diskette.
2. Make sure all disk activity has stopped, then remove any CDs or diskette.

CAUTION: Make sure the **Disk** *is off. If you turn off the power while a disk is being accessed, you can lose data or damage the disk.*

3. If you are using Windows XP, click **start** then click **Turn off computer**. From the **Turn off computer** menu select **Turn off** .

   If you are using Windows 2000, click **Start** and click **Shut Down**. From the **Shut Down** menu select **Shut Down**.

4. Turn off the power to any peripheral devices.

CAUTION: *Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.*

Hibernation mode

The hibernation feature saves the contents of memory to the hard disk when the computer is turned off. The next time the computer is turned on, the previous state is restored. The hibernation feature does not save the status of peripheral devices.

CAUTIONS:

1. *While entering hibernation mode, the computer saves the contents of memory to the HDD. Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the* **Disk** *indicator to go out.*
2. *Do not install or remove a memory module while the computer is in hibernation mode. Data will be lost.*

Benefits of hibernation

The hibernation feature provides the following benefits:

- Saves data to the hard disk when the computer automatically shuts down because of a low battery.

  NOTE: *For the computer to shut down in hibernation mode, the hibernation feature must be enabled in two places in TOSHIBA Power Saver: the Hibernate window and the Battery Alarm item of the Alarm window. Otherwise, the computer will shut down in Standby mode. If battery power becomes depleted, data saved in Standby will be lost.*

- You can return to your previous working environment immediately when you turn on the computer.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System hibernate feature.
- You can use the panel power off feature.

Starting Hibernation

To enter Hibernation mode, follow the steps below.

Windows XP

1. Click **Start**.
2. Select **Turn Off Computer**.
3. Open the **Turn Off Computer** dialog box. **Hibernate** is not displayed.
4. Press the **Shift** key. The **Standby** item will change to **Hibernate**.
5. Select **Hibernate**.

Windows 2000

1. Click **Start** and click **Shut Down**.
2. In **Shut Down Windows** select **Hibernate** and click the **OK** button.

The computer will also enter Hibernate mode automatically when you:

- Press the power button.
- Close the lid.

First, however, make the appropriate settings according to the steps below.

Windows XP/2000

1. In Windows XP, open the **Control Panel**, click **Performance and Maintenance** and click the **TOSHIBA Power Saver** icon.

   In Windows 2000, open the **Control Panel** and double-click the **TOSHIBA Power Saver** icon.
2. Select the **Hibernate** window, select the **Enable Hibernate support** check box and click the **Apply** button.
3. Select the **Power Save Modes** window.
4. Double-click **Power Save Mode** and open the **System Power Mode** window.
5. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid**.
6. Click the **OK** button.

Data save in hibernation mode

When you turn off the power in hibernation mode, the computer takes a moment to save current memory data to the hard disk. During this time, the **Disk** indicator will light.

After you turn off the computer and memory is saved to the hard disk, turn off the power to any peripheral devices.

> ***CAUTION:*** *Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.*

Standby mode

In standby mode the power remains on, but the CPU and all other devices are in sleep mode.

Standby precautions

- Before entering Standby mode, be sure to save your data.
- Do not install or remove a memory module while the computer is in standby mode. The computer or the module could be damaged.
- Observe the following precautions regarding standby mode:
  - Do not remove the memory module.
  - Do not remove the Battery Pack.

  Either action could cause the computer to hang up the next time you turn it on.

  The computer could also hang up at power on if it shut down automatically in standby mode because of a low battery.

  In any of the above cases, the standby configuration will not be saved.

  The following message appears when you turn on the power:

  ```
  WARNING: RESUME FAILURE.
  PRESS ANY KEY TO CONTINUE.
  ```

  If the computer hangs up when you turn it on, perform the following:

  Press the power button and hold it down for five seconds, then turn the power on again.

- If you carry the computer on board an aircraft or into a hospital, be sure to shut down the computer in hibernation mode or in shutdown mode to avoid radio signal interference.

Benefits of standby

The standby feature provides the following benefits:

- Restores the previous working environment more rapidly than does hibernation.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System Standby feature.
- You can use the panel power off feature.

Executing standby

You can enter standby mode in one of three ways:

1. In Windows XP, click **Start**, click **Turn Off Computer** and click **Stand by**.

   In Windows 2000, click **Start**, click **Shut Down**, select **Stand by** and click **OK**.

2. Close the display panel. This feature must be enabled. Refer to the *System Power Mode* item in *Power Saver Utility* described in the Control Panel.

   In Windows XP, click **Performance and Maintenance** and click the **TOSHIBA Power Saver** icon.

   In Windows 2000, double-click the **TOSHIBA Power Saver** icon.

3. Press the power button. This feature must be enabled. Refer to the *System Power Mode* item in *Power Saver Utility* described in the Control Panel.

   In Windows XP, click **Performance and Maintenance** and click the **TOSHIBA Power Saver** icon.

   In Windows 2000, double-click the **TOSHIBA Power Saver** icon.

When you turn the power back on, you can continue where you left when you shut down the computer.

NOTES: *1. When the computer is shut down in standby mode, the power indicator glows orange.*

2. If you are operating the computer on battery power, you can lengthen the operating time by shutting down in hibernation mode. Standby mode consumes more power.

Standby limitations

Standby will not function under the following conditions:

- Power is turned back on immediately after shutting down.
- Memory circuits are exposed to static electricity or electrical noise.

Restarting the computer

Certain conditions require that you restart the computer system. For example, if:

- You change certain computer settings.
- An error occurs and the computer does not respond to your keyboard commands.

There are two ways to restart the computer system:

1. If you are using Windows XP, click **start** then click **Turn off computer**. From the **Turn off computer** menu select **Restart**.

   If you are using Windows 2000, click **Start** and click **Shut Down**. From the **Shut Down** menu select **Restart**.
2. Press the power button and hold it down for five seconds. Wait 10 to 15 seconds, then turn the power on again by pressing the power button.

Restoring the Windows system

If preinstalled files are damaged, use the Product Recovery CD-ROM to restore them. To restore the operating system and all preinstalled software, follow the steps below.

> ***CAUTION:*** *When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.*

1. Load the Product Recovery CD-ROM in the drive and turn off the computer's power.
2. Hold down the **C** key and turn on the power. When **In Touch with Tomorrow TOSHIBA** appears, release the **C** key.
3. Follow the on-screen instructions.

Operating Basics

This chapter gives information on basic operations including using the Touch Pad, the external diskette drive, the wireless communication, LAN and the internal modem. It also provides tips on caring for your computer and on heat dispersal.

Using the Touch Pad

To use the Touch Pad, simply press and move your finger tip across it in the direction you want the on-screen pointer to go.

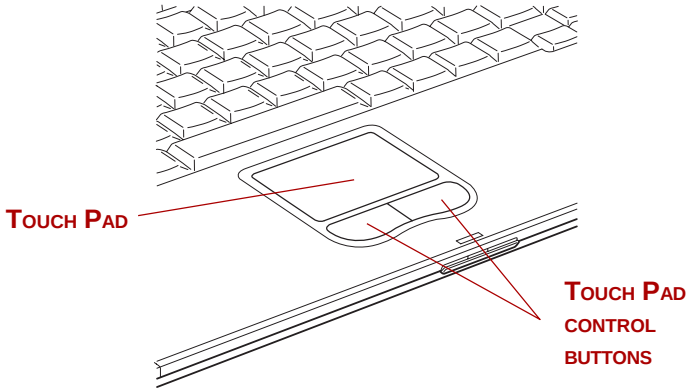


Figure 4-1 Touch Pad and Touch Pad control buttons

Two buttons below the keyboard are used like the buttons on a mouse pointer. Press the left button to select a menu item or to manipulate text or graphics designated by the pointer. Press the right button to display a menu or other function depending on the software you are using.

> ***CAUTION:*** *Do not press on the touch pad too hard or press a sharp object such as a ball point pen against the touch pad. The touch pad could be damaged.*

For some functions, you can tap the touch pad instead of pressing a control button.

Click	Tap the touch pad once
Double-click	Tap the touch pad twice
Drag and drop	1. Hold down the left control button and move the cursor to drag the item you want to move. 2. Lift your finger to drop the item where you want it.
Scroll	Vertical: Move your finger up or down the right edge of the touch pad. Horizontal: Move your finger left or right along the bottom edge of the touch pad.

Using the USB FDD Kit

A 3 1/2" external diskette drive module connects to the USB port.

NOTE: *The USB FDD Kit is an option with some models.*

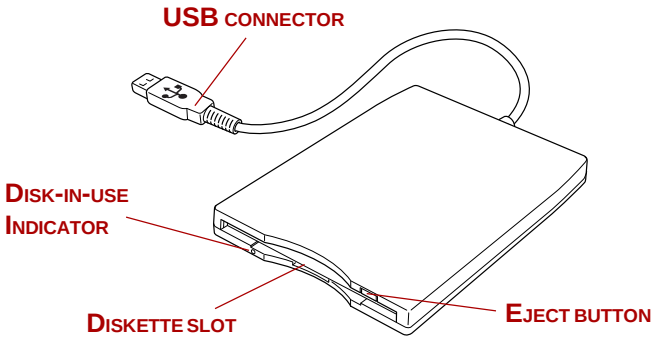


Figure 4-2 The 3 1/2" USB FDD Kit

Eject button	When a diskette is fully seated in the drive, the eject button pops out. To remove a diskette, push in the eject button and the diskette pops out partially for easy removal.
Diskette slot	Insert diskettes in this slot.
Disk-In-Use Indicator	This indicator lights when the diskette is being accessed.

CAUTION: *Check the* **Disk-In-Use** *indicator when you use the diskette drive. Do not press the eject button, disconnect a drive cable or turn off the computer while the light is glowing. Doing so could destroy data and damage the diskette or the drive.*

NOTES:
1. *The external diskette drive should be placed on a flat, horizontal surface when in use. Do not set the drive on an incline greater than 20° while it is operating.*
2. *Do not set anything on top of the diskette drive.*
3. *If you need to boot the computer from the diskette drive or if you use an OS that does not support USB, you must set the USB-FDD Legacy Emulation feature in HW Setup to Enabled. Refer to the USB section in Chapter 7.*

Connecting 3 1/2" diskette drive

To connect the drive, plug the diskette drive connector into a USB port. Refer to Figure 4-3.

NOTE: *Make sure the connector is right side up and properly aligned with the socket. Do not try to force the connection, doing so can damage the connecting pins.*

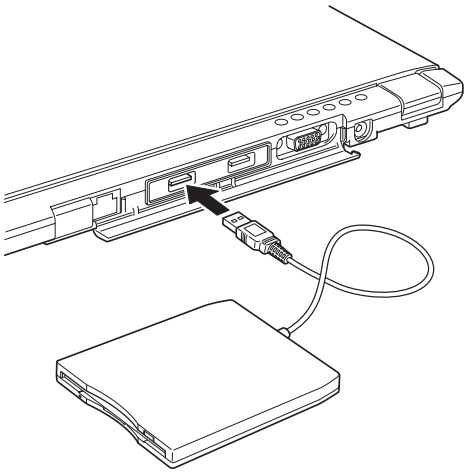


Figure 4-3 Connecting the diskette drive to the computer

NOTE: *If you connect the diskette drive after turning on the computer, it will take about 10 seconds for the computer to recognize the drive. Do not disconnect and reconnect before 10 seconds has elapsed.*

Disconnecting 3 1/2" diskette drive

When you have finished using the diskette drive, follow the procedures below to disconnect it:

1. Wait for the indicator light to go out to make sure all diskette activity has stopped.

   CAUTION: *If you disconnect the diskette drive or turn off the power while the computer is accessing the drive you may lose data or damage the diskette or the drive.*

2. Pull the diskette drive connector out of the USB port.

Diskette care

Handle your diskettes with care. The following simple precautions will increase the lifetime of your diskettes and protect the data you store on them:

1. Store your diskettes in the container they came in to protect them and keep them clean. If a diskette is dirty, do not use cleaning fluid. Clean it with a soft damp cloth.
2. Do not slide back the diskette's protective metal covering or touch the diskette's magnetic surface. Fingerprints may prevent the diskette drive from reading data from the diskette.
3. Data may be lost if the diskette is twisted; bent; or exposed to direct sunlight or extreme heat or cold.
4. Do not place heavy objects on your diskettes.
5. Do not eat, smoke, or use erasers near your diskettes. Foreign particles inside the diskette's jacket can damage the magnetic surface.
6. Magnetic energy can destroy the data on your diskettes. Keep your diskettes away from speakers, radios, television sets and other sources of magnetic fields.

Wireless communications

The computer's wireless communication function support wireless LAN. This section applies only to models with Wireless LAN functions.

Wireless LAN

The wireless LAN is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with IEEE 802.11 wireless LAN standard (Revision B). It supports the following features:

- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.
- Frequency Channel Selection (2.4 GHz)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs.

Wake-up on LAN does not function on a wireless LAN.

Wireless communication switch

You can enable or disable wireless LAN function, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch to the right to turn it on and to the left to turn it off.

> ***CAUTION:*** *Set the switch to off in airplanes and hospitals. Check the LED. It will stop glowing when the wireless communication function is off.*

Wireless communication LED

The LED indicates the status of the wireless communication functions.

LED status	Indication
LED off	Wireless communication switch is set to off. Automatic power down because of overheating. Power malfunction
LED glows	Wireless communication switch is on. Wireless LAN is turned on by an application.

If you used the Task Tray icon to disable W-LAN, restart the computer or follow the procedures below to enable the system to recognize W-LAN. Open or click the following: **Start**, **Setup**, **Control Panel**, **System**, **Device Manager** and **Renew**.

LAN

LAN circuits support Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx). This section describes how to connect/disconnect to a LAN.

> ***CAUTION:*** *Do not install or remove an optional memory module while Wake-up on LAN is enabled.*
>
> ***NOTE:*** *Wake-up on LAN does not work without the AC adaptor. Leave it connected, if you are using this feature.*

LAN cable types

> ***CAUTION:*** *The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable. You cannot use a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with either a CAT5 or a CAT3.

Connecting cable

To connect the LAN cable, follow the steps below.

> ***CAUTION:*** *Connect the AC adaptor before connecting the LAN cable. The AC adaptor must remain connected during LAN use. If you disconnect the AC Adaptor while the computer is accessing a LAN, the system may hang up.*

1. Turn off the power to the computer and to all external devices connected to the computer.

2. Plug one end of the cable into the LAN's jack. Press gently until you hear the latch click into place.

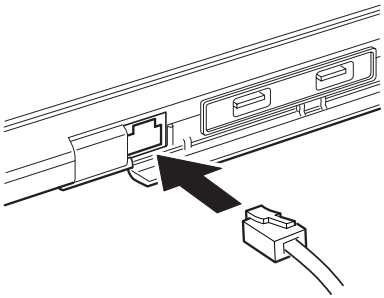


Figure 4-4 Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector. Check with your LAN administrator before connecting to a hub.

Disconnecting cable

To disconnect the LAN cable, follow the steps below.

1. Pinch the lever on the connector in the computer and pull out the connector.
2. Disconnect the cable from the LAN hub in the same manner. Check with your LAN administrator before disconnecting from the hub.

Network Device Switch

This application is used to select one network device on your system and to prevent inconsistent routing table problems on TCP/IP networks.

Using the switch

To select a network device, follow the steps below.

1. In Windows XP, click **start**, point to **All Programs**, click **Network Device Switch**.
   Left-click the **Network Device Switch** icon on the Task bar to display a device menu.

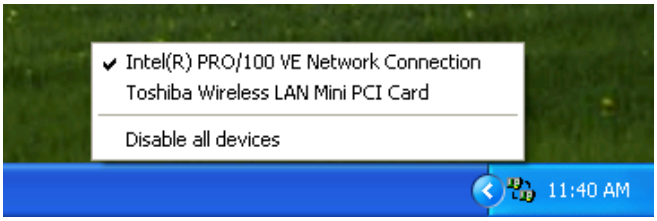


Figure 4-5 Sample of a network device menu (left click)

2. Click the network device you want to enable. A check will appear beside the enabled devices. Devices without checks are disabled.

Auto Switch menu

Right-click the **Network Device Switch** icon to diaplay the Auto Switch menu.

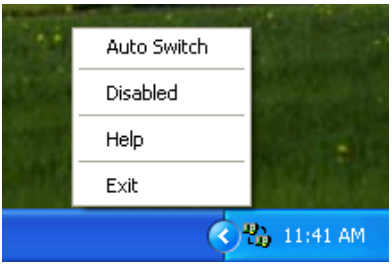


Figure 4-6 Auto Switch menu (right click)

Auto Switch

When Auto Switch is selected, this application automatically enables the wireless LAN device when you disconnect the LAN cable. This feature works only if a wired LAN device is currently enabled and the LAN uses TCP/IP protocol.

Disabled

Click **Disabled** to disable or enable this program's features.

Help

Click **Help** to display a readme file.

Exit

Click **Exit** to quit the program.

NOTES: *1. If you change the network device, you might need to log onto the network again.*

2. Log on as the administrator.

If the Control device power management checkbox in the Device Settings window of Power Saver is enabled, the following four events will trigger a change in settings made in the Device Setting window of the Power Saver utility. The change will occur regardless of the Network Device Switch setting. To avoid these automatic changes, clear the **Control device power management** checkbox in the Power Saver utility. For details, refer to the Power Saver utility's help files.

1. You start the computer on battery power.
2. You start the computer with the AC adapter connected and disconnect the AC adapter during operation.
3. You change the Power Saver settings.
4. The computer resumes operation in suspend or hibernation mode.

Super Long Life scheme

The Super Long Life mode is a scheme of the TOSHIBA Power Saver utility. It is designed to maximize battery operating time.

In the default setting, wired and wireless LAN functions are disabled. To enable LAN functions, clear the Control device power management checkbox. Unless this checkbox is cleared, you will not be able to use LAN functions even if you enable them with the Network Device Switch. Refer to Power Saver utility help files for details.

The Super Long Life power saving scheme is not selected as a default.

Using the internal modem

If you purchased a computer model with a preinstalled internal modem, read this section for directions on connecting the modem. Refer to the online help files for the internal modem and for details on operation of your modem and modem software.

NOTE: *The internal modem does not support the voice functions. All data and fax functions are supported.*

CAUTIONS: *1. In case of a lightning storm, unplug the modem cable from the telephone jack.*

2. Do not connect the modem to a digital telephone line. A digital line will damage the modem.

Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.

1. a. In Windows XP, click **start**, point to **All Programs**, point to **TOSHIBA Internal Modem** and click **Region Select Utility**.

   NOTE: *Do not use the Country/Region Select function in the Modem setup utility in the Control Panel if the function is available. If you change the Country/Region in the Control Panel, the change may not take effect.*

   b. In Windows 2000, click **Start**, point to **Programs**, point to **TOSHIBA Internal Modem** and click **Region Select Utility**.

2. The Region Selection icon will appear in the Windows Task Bar.

Figure 4-7 The Region Selection icon (Windows XP)

Figure 4-8 The Region Selection icon (Windows 2000)

3. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.
4. Select a region from the region menu or a telephony location from the sub-menu.
   - When you click a region it becomes the modem's region selection, and the New Location for telephony will be set automatically.
   - When you select a telephony location, the corresponding region is automatically selected and it becomes the modem's current region setting.

Properties menu

Click the icon with the secondary mouse button to display the following menu.

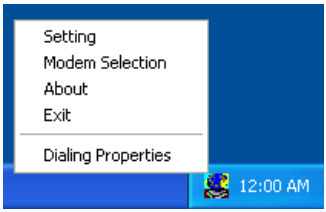


Figure 4-9 The menu list (Windows XP)

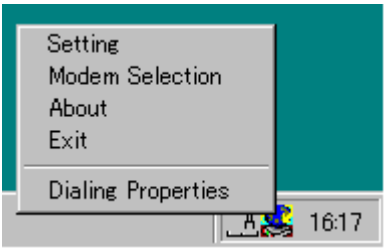


Figure 4-10 The menu list (Windows 2000)

Setting

You can enable or disable the following settings:

AutoRun Mode

Region Select Utility starts automatically when you start up the operating system.

Open the Dialing Properties dialog box after selecting region.

The dialing properties dialog box will be displayed automatically after you select the region.

Location list for region selection.

A submenu appears displaying location information for telephony.

Open dialog box, if the modem and Telephony Current Location region code do not match.

A warning dialog box is displayed if current settings for region code and telephony location are incorrect.

Modem Selection

If the computer cannot recognize the internal modem, a dialog box is displayed. Select the COM port for your modem to use.

Dialing Properties

Select this item to display the dialing properties.

CAUTION: *If you are using the computer in Japan, technical regulations described in the Telecommunications Business Law require that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.*

Connecting

To connect the internal modem cable, follow the steps below.

WARNING: *The modular cable that comes with the computer must be used to connect a modem. Connect the end of the modular cable with the core to the computer.*

CAUTIONS:
1. *In case of a lightning storm, unplug the modem cable from the telephone jack.*
2. *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

1. Plug one end of the modular cable into the modem jack.
2. Plug the other end of the modular cable into a telephone jack.

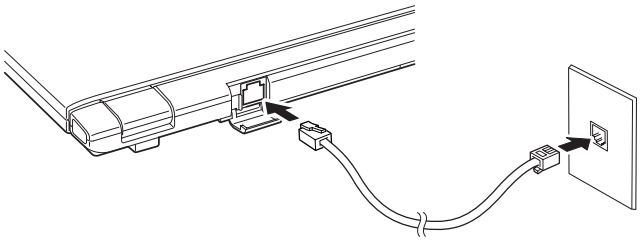


Figure 4-11 Connecting the internal modem

CAUTION: *Do not pull on the cable or move the computer while the cable is connected.*

NOTE: *If you use a storage device such as a CD-ROM drive or HDD connected to a 16-bit PC card, modem speed might be slow or communication might be interrupted.*

Disconnecting

To disconnect the internal modem cable, follow the steps below.

1. Pinch the lever on the connector in the telephone jack and pull out the connector.
2. Disconnect the cable from the computer in the same manner.
3. In the same way, pull the cable's other connector out of the computer.

Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and use care with liquids around the computer.

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely before you turn it on again.
- Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the display. Spray a small amount of cleaner on a soft, clean cloth and wipe the screen gently with the cloth.

CAUTION: *Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.*

Moving the computer

The computer is designed for rugged durability. However, a few simple precautions taken when moving the computer will help ensure trouble-free operation.

- Make sure all disk activity has ended before moving the computer. Check the **Disk** indicator on the computer and the indicator on any external disk drive.
- If a diskette is in the external disk drive, remove it.
- Disconnect the AC adaptor and all other peripherals before moving the computer.
- Turn off the power to the computer.
- Close the display. Do not pick up the computer by its display panel or back (where the interface ports are located).
- Close all port covers.
- Use the carrying case when transporting the computer.

Heat dispersal

To protect from overheating, the CPU has an internal temperature sensor. If the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. You can select whether to control the CPU temperature by turning on the fan first, then if necessary, lowering the CPU speed. Or, by lowering the CPU speed first, then if necessary, turning on the fan. Use the *Fan* item of the *Power Save Mode* window in TOSHIBA Power Saver.

When the CPU temperature falls to a normal range, the fan is turned off and the CPU operation returns to standard speed.

> ***NOTE:*** *If the CPU temperature reaches an unacceptably high level with either setting, the system automatically shuts down to prevent damage. Data in memory will be lost.*

The Keyboard

The computer's keyboard layouts are compatible with a 101/102-key enhanced keyboard. By pressing some keys in combination, all the 101/102-key keyboard functions can be executed on the computer.

The number of keys on your keyboard depends on which country/region's keyboard layout your computer is configured with. Keyboards for numerous languages are available.

There are five types of keys: typewriter keys, keypad overlay, function keys, soft keys and cursor control keys.

Typewriter keys

The typewriter keys, produce the upper- and lowercase letters, numbers, punctuation marks, and special symbols that appear on the screen.

There are some differences, however, between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a "space character," may also vary depending on line justification and other factors.
- The lowercase l (el) and the number 1 (one) are not interchangeable on computers as they are on a typewriter.
- The uppercase O (oh) and the 0 (zero) are not interchangeable.
- The **Caps Lock** function key locks only the alphabetic characters in uppercase while the shift lock on a typewriter places all keys in the shifted position.
- The **Shift** keys, the **Tab** key, and the **BkSp** (backspace) key perform the same function as their typewriter counterparts but also have special computer functions.

F1 … F12 function keys

The function keys, not to be confused with **Fn**, are the 12 keys at the top of your keyboard. These keys are dark gray, but function differently from the other dark gray keys.

F1 through **F12** are called function keys because they execute programmed functions when pressed. Used in combination with the **Fn** key, keys marked with icons execute specific functions on the computer. See the section, *Soft keys: Fn key combinations*, in this chapter. The function executed by individual keys depends on the software you are using.

Soft keys: Fn key combinations

The **Fn** (function) is unique to TOSHIBA computers and is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.

> ***NOTE:*** *Some software may disable or interfere with soft-key operations. Soft-key settings are not restored by the Resume feature.*

Emulating keys on enhanced keyboard

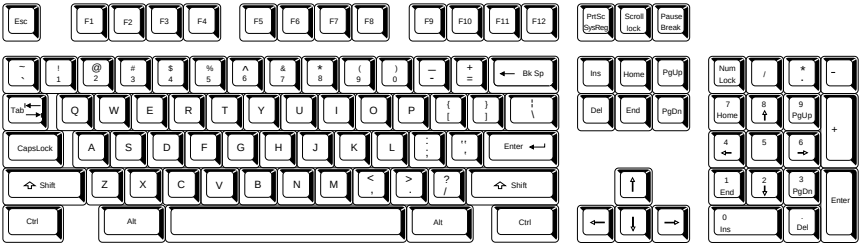
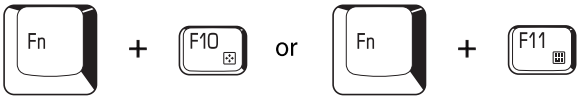


Figure 5-1 A 101-key enhanced keyboard layout

The keyboard is designed to provide all the features of the 101-key enhanced keyboard, shown in figure 5-1. The 101/102-key enhanced keyboard has a numeric keypad and scroll lock key. It also has additional **Enter**, **Ctrl** and **Alt** keys to the right of the main keyboard. Since the keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

Your software may require you to use keys that the keyboard does not have. Pressing the **Fn** key and one of the following keys simulates the enhanced keyboard's functions.



Press **Fn + F10** or **Fn + F11** to access the integrated keypad. When activated, the keys with white markings on the bottom edge become numeric keypad keys (**Fn + F11**) or cursor control keys (**Fn + F10**). Refer to the *Keypad overlay* section in this chapter for more information on how to operate these keys. The power on default for both settings is off.

Press **Fn** + **F12** (**ScrLock**) to lock the cursor on a specific line. The power on default is off.

Press **Fn** + **Enter** to simulate **Enter** on the enhanced keyboard's numeric keypad.

Press **Fn** + **Ctrl** to simulate the enhanced keyboard's right **Ctrl** key.

Press **Fn** + **Alt** to simulate the enhanced keyboard's right **Alt** key.

Hotkeys

Hotkeys (**Fn** + another key) let you enable or disable certain features of the computers.

Sound mute: Pressing **Fn** + **Esc** in a Windows environment turns sound on or off. When you press these hotkeys, the current setting will be displayed as an icon.

Volume decrease: Press **Fn** + **1** to decrease the sound volume. After you press this hotkey, an icon showing the new setting will be displayed for two seconds.

Volume increase: Press **Fn** + **2** to increase the sound volume. After you press this hotkey, an icon showing the new setting will be displayed for two seconds.

Instant security: Press **Fn** + **F1** to lock the keyboard and blank the screen to prevent others from accessing your data. To restore the screen and original settings, press any key or move the AccuPoint II. When a dialog box appears, enter the screensaver password and click **OK**. If no password is set, the screen will be restored when you press any key.

Power save mode: Pressing **Fn** + **F2** changes the power save mode.

If you press **Fn** + **F2**, the Power Save Mode is displayed in a dialog box. Continue holding down **Fn** and press **F2** again to change the setting. You can also change this setting through the *Plugged in* or *Running on batteries* item of the *Power Saver Properties* window in Power Saver.

Standby: When you press **Fn** + **F3**, the computer can enter Standby. To avoid entering Standby unexpectedly, a dialog box appears for verification. However, if you check the checkbox in the dialog box, it will not appear from the next time.

Hibernation: When you press **Fn** + **F4**, the computer can enter Hibernation. To avoid entering Hibernation unexpectedly, a dialog box appears for verification. However, if you check the checkbox in the dialog box, it will not appear from the next time.

Display selection: Press **Fn** + **F5** to change the active display device. When you press these hot keys a dialog box appears. Only selectable devices will be displayed. Hold down **Fn** and press **F5** again to change the device. When you release **Fn** and **F5**, the selected device will change. If you hold down the keys for three seconds the selection will return to **LCD**.

Display Brightness: Pressing **Fn** + **F6** decreases the display brightness in increments. When you press these hotkeys, the current setting will be displayed for two seconds by an icon. You can also change this setting through the *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

Display Brightness: Pressing **Fn** + **F7** increases the display brightness in increments. When you press these hotkeys, the current setting will be displayed for two seconds by a pop-up icon. You can also change this setting through the *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

> ***NOTE:*** *You cannot change the display brightness for about 18 seconds after the LCD turns on. To protect display quality, the brightness level is set at the maximum value.*

Fn Sticky key

You can use the TOSHIBA Accessibility Utility to make the **Fn** key sticky, that is, you can press it once, release it, and they press an "**F number**" key.

Windows special keys

The keyboard provides two keys that have special functions in Windows : one activates the **Start** menu and the other has the same function as the secondary mouse button.

This key activates the Windows **Start** menu.

This key has the same function as the secondary mouse button.

Keypad overlay

Your computer's keyboard does not have an independent numeric keypad, but its numeric keypad overlay functions like one.

The keys in the center of the keyboard with white letters make up the numeric keypad overlay. The overlay provides the same functions as the numeric keypad on the 101/102-key enhanced keyboard in figure 5-2.

Turning on the overlays

The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

To turn on the Arrow mode, press **Fn** + **F10**. The Arrow mode indicator lights. Now try cursor and page control using the keys shown in figure 5-2. Press **Fn** + **F10** again to turn off the overlay.

Numeric mode

To turn on the Numeric mode, press **Fn** + **F11**. The Numeric mode indicator lights. Now try numeric data entry using the keys in figure 5-2. Press **Fn** + **F11** again to turn off the overlay.

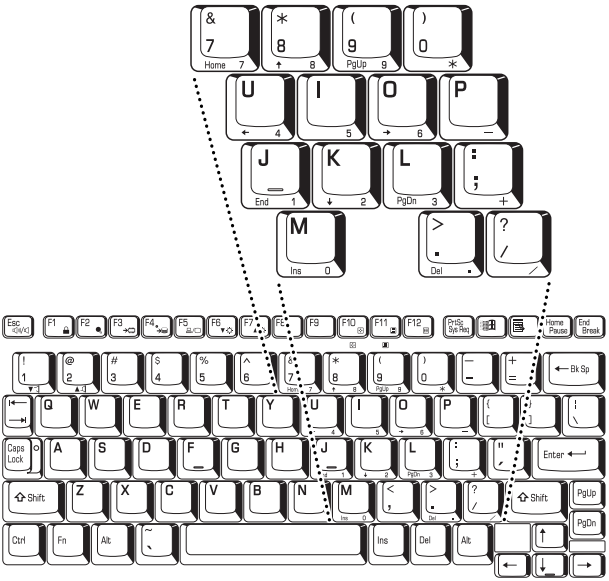


Figure 5-2 The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard without turning off the overlay:

1. Hold **Fn** and press any other key. All keys will operate as if the overlay were off.
2. Type uppercase characters by holding **Fn** + **Shift** and pressing a character key.
3. Release **Fn** to continue using the overlay.

Temporarily using overlay (overlay off)

While using the normal keyboard, you can temporarily use the keypad overlay without turning it on:

1. Press and hold down **Fn**.
2. Check the keyboard indicators. Pressing **Fn** turns on the most recently used overlay. If the Numeric mode indicator lights, you can use the overlay for numeric entry. If the Arrow mode indicator lights, you can use the overlay for cursor and page control.
3. Release **Fn** to return to normal keyboard operation.

Temporarily changing modes

If the computer is in **Numeric mode**, you can switch temporarily to **Arrow mode** by pressing a shift key.

If the computer is in **Arrow mode**, you can switch temporarily to **Numeric mode** by pressing a shift key.

Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation. But, you can generate these characters using their ASCII codes.

With the overlay on:

1. Hold down **Alt**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt**, and the ASCII character appears on the display screen.

With the overlay off:

1. Hold **Alt** + **Fn**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt** + **Fn**, and the ASCII character appears on the display screen.

Chapter 6

Power and Power-Up Modes

The computer's power resources include the AC adaptor and internal batteries. This chapter gives details on making the most effective use of these resources including charging and changing batteries, tips for saving battery power, and power up modes.

Power conditions

The computer's operating capability and battery charge status are affected by the power conditions: whether an AC adaptor is connected, whether a battery is installed and what the charge level is for the battery.

Table 6-1 Power conditions

		Power on	Power off (no operation)
AC adaptor connected	Main battery fully charged	• Operates • LED: **Main battery** green **DC IN** green	• LED: **Main battery** green **DC IN** green
	Main battery partially charged or no charge	• Operates • Quick charge *1 • LED: **Main battery** orange **DC IN** green	• Quick charge *1 • LED: **Main battery** orange **DC IN** green
	No main battery installed	• Operates • No charge • LED: **Main battery** off **DC IN** green	• No charge • LED: **Main battery** off **DC IN** green

Table 6-1 Power conditions continued

		Power on	Power off (no operation)
AC adaptor connected	2nd battery fully charged	• Operates • LED: **2nd battery** green **DC IN** green	• LED: **2nd battery** green **DC IN** green
	2nd battery partially charged or no charge	• Operates • Quick charge *2 • LED: **2nd battery** orange **DC IN** green	• Quick charge *2 • LED: **2nd battery** orange **DC IN** green
	No 2nd battery installed	• Operates • No charge • LED: **2nd battery** off **DC IN** green	• No charge • LED: **2nd battery** off **DC IN** green
AC adaptor not connected	Main battery charge is above low battery trigger point	• Operates • LED: **Main battery** off **DC IN** off	
	Main battery charge is below low battery trigger point	• Operates • LED: **Main battery** flashes orange **DC IN** off	
	Main battery charge is exhausted	Computer goes into resume mode and shuts down *3	
	No main battery installed	• No operation *4 • LED: **Main battery** off **DC IN** off	

Table 6-1 Power conditions continued

		Power on	Power off (no operation)
AC adaptor not connected	2nd battery charge is above low battery trigger point	• Operates • LED: **2nd battery** off **DC IN** off	
	2nd battery charge is below low battery trigger point	• Operates • LED: **2nd battery** flash orange **DC IN** off	
	2nd battery charge is exhausted	Computer goes into resume mode and shuts down *3	
	No 2nd battery is installed	• No operation *5 • LED: **2nd battery** off **DC IN** off	

NOTE: **2nd battery** *indicator refers to the* **Secondary battery** *indicator when a secondary battery is installed.*

*1 When the secondary battery is not charging.

*2 When the main battery is not charging

*3 If a main battery and a secondary battery are installed, the computer does not enter Resume mode until the charge in both batteries is exhausted.

*4 When no secondary battery is installed

*5 When no main battery is installed

NOTE: *When batteries are charged, the main battery is charged first. When it is fully charged, the secondary battery is charged.*

Power indicators

The **Main battery, Secondary battery**, **DC IN** and **Power** indicators on the system indicator panel alert you to the computer's operating capability and battery charge status.

Battery indicators

Check the **Main battery** indicator to determine the status of the main battery and the **Secondary battery** indicator to determine the status of the secondary battery. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low. The AC adaptor must be connected to recharge the battery.
Orange	Indicates the AC adaptor is connected and charging the battery.
Green	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.

NOTE: *If the battery becomes too hot while it is being charged, the charge will stop and the battery indicator will go out. When the battery's temperature falls to a normal range, charge will resume. This event occurs regardless of whether the power to the computer is on or off.*

DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected:

Green	Indicates the AC adaptor is connected and supplying proper power to the computer.
Flashing orange	Indicates a problem with the power supply. Plug the AC adaptor into another outlet. If it still does not operate properly, see your dealer.
No light	Under any other conditions, the indicator does not light.

Power indicator

Check the **Power** indicator to determine the power status.

Green	Indicates power is being supplied to the computer and the computer is turned on.
Blinking orange	Indicates the power was turned off while the computer was in Resume mode. The indicator turns on for one second and turns off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery types

The computer has three types of batteries:

- Battery Packs – main and secondary (option)
- Real Time Clock (RTC) battery

Main battery

When the AC power cord is not connected, the computer's main power source is a removable lithium-ion polymer Battery Pack, also referred to in this manual as the main battery. You can purchase Battery Packs for extended use of the computer away from an AC power source.

> ***CAUTION:*** *The Battery Pack is a lithium-ion polymer battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*

The main battery recharges the RTC batteries. The main battery maintains the state of the computer when you enable standby mode.

> ***CAUTION:*** *Do not remove the Battery Pack while the computer is in standby mode. The computer could hang up the next time you turn it on and data in memory will be lost. The computer could also hang up at power on if it shut down automatically in standby mode because of a low battery. In either of the above cases, the standby configuration will not be saved.*

The following message appears when you turn on the power:

```
WARNING: RESUME FAILURE.
PRESS ANY KEY TO CONTINUE.
```

If the computer hangs up when you turn it on, perform the following: Press the power button and hold it down for five seconds, then turn the power on again.

To ensure that the Battery Pack maintains its maximum capacity, operate the computer on battery power at least once a month until the Battery Pack is fully discharged. Refer to *Extending battery life* in this chapter for procedures. If the computer is continuously operated on AC power, either through an AC adaptor or a docking station for an extended period, more than a month, the battery may fail to retain a charge. It may not function efficiently over the expected life of the battery and the Battery LED may not indicate a low-battery condition.

Secondary battery (option)

An optional High Capacity 2nd Battery Pack can be increase your battery operating time. Note the caution on Resume mode in the previous section *Main battery*.

CAUTION: *The secondary Battery Pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*

Real time clock battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar. It also maintains the system configuration.

If the RTC battery becomes completely discharged, the system loses this data and the real time clock and calendar stop working. The following message appears when you turn on the power:

```
*** Bad RTC battery ***
Check system. Then press [F1] key . . . . . .
```

CAUTION: *The computer's RTC battery is a lithium ion battery and should be replaced only by your dealer or by a TOSHIBA service representative. The battery can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations.*

Care and use of the Battery Pack

The Battery Pack is a vital component of portable computing. Taking proper care of it will help ensure longer operating time on battery power as well as a longer life for your Battery Pack. Follow the instructions in this section carefully to ensure safe operation and maximum performance.

Safety precautions

1. Turn off the computer's power immediately and disconnect the power cord from the power socket, if the Battery Pack produces an odor, overheats or changes color or shape while it is being used or charged. Carefully remove the Battery Pack from the computer.
2. Be very careful not to short-circuit the Battery Pack. Contacting both terminals with a metal object can cause injury, fire or damage to the Battery Pack.
3. Do not overcharge, reverse charge, mutilate or disassemble the Battery Pack. Any one of those actions could release toxic materials, hydrogen and/or oxygen or other electrolytic substances or cause an increase in the Battery Pack's surface temperature.
4. Do not expose the Battery Pack to fire; the Battery Pack could explode.
5. Battery Packs contain toxic substances. Do not dispose of them with ordinary trash. Dispose of Battery Packs only in accordance with local ordinances. Always cover the metal terminals with insulating tape to avoid short circuits.
6. If the Battery Pack has leaked or been vented, it should be replaced immediately. Use protective gloves when handling a damaged Battery Pack.
7. When it becomes necessary to replace the Battery Pack, it must be replaced only by an identical Battery Pack from the same manufacturer.
8. Do not expose the Battery Pack terminals to any metal object other than the computer contacts. Wrap it or place it in a plastic bag when transporting it.
9. When you install the Battery Pack, you should hear a click when it is seated properly.
10. Charge the Battery Pack only in the computer or in a Battery Pack charger designated as an approved option.
11. Reverse polarity should be avoided with all Battery Packs. The Battery Pack is designed so that it cannot be installed in reverse polarity.

Charging the batteries

When the power in the Battery Pack becomes low, the **Battery** indicator flashes orange indicating that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer enables Resume mode (so you don't lose data) and automatically turns off.

You must recharge a Battery Pack when it becomes discharged.

> ***NOTE:*** *The main Battery Pack should be charged only in the computer. A High Capacity 2nd Battery Pack can be charged either by the computer or by an optional Battery Charger.*

Procedures

To recharge a Battery Pack while it is installed in the computer, connect the AC adaptor to the **DC IN** socket and plug the other end into a working outlet.

The **Battery** indicator glows orange when the battery is being charged.

> ***CAUTION:*** *Use only the computer connected to an AC power source or the optional TOSHIBA Battery charger to charge the Battery Pack. Do not attempt to charge the Battery Pack with any other charger.*

Time

The following table shows the approximate time required to fully charge a discharged battery.

	Charging time (hours)	
Battery type	**Power on**	**Power off**
Main Battery Pack	2.0 to 4.0 or longer	2.0
Secondary Battery Pack	3.0 to 8.0 or longer	3.0
RTC battery	8.0	Doesn't charge

Battery charging notice

The battery may not charge right away under the following conditions:

- The battery is extremely hot or cold. If the battery is extremely hot, it might not charge at all. Also, to ensure the battery charges to its full capacity, charge the battery at room temperature of 10° to 30°C (50° to 88°F).
- The battery is nearly completely discharged. Leave the AC adaptor connected for a few minutes and the battery should begin charging.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

- The battery has not been used for a long time.
- The battery has completely discharged and been left in the computer for a long time.
- A cool battery is installed in a warm computer.

In such case, follow the steps below.

1. Fully discharge the battery by leaving it in the computer with the power on until the power automatically shuts off.
2. Plug in the AC adaptor.
3. Charge the battery until the **Battery** indicator glows green.

Repeat the steps two or three times until the battery recovers normal capacity.

> ***NOTE:*** *Leaving the AC adaptor connected will shorten battery life. At least once a month, run the computer on battery power until the battery is fully discharged, then recharge the battery.*

Monitoring battery capacity

Remaining battery power can be monitored in the *Power Save Modes* window in Power Saver of Windows.

NOTES:

1. *Wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. The computer needs this time to check the battery's remaining capacity and to calculate the remaining operating time, based on the current power consumption rate and remaining battery capacity. The actual remaining operating time may differ slightly from the calculated time.*
2. *With repeated discharges and recharges, the battery's capacity will gradually decrease. Therefore, an often used, older battery will not operate for as long as a new battery even when both are fully charged. In this case, TOSHIBA Power Saver will indicate a 100% charge for both the old and new battery, but the displayed estimated time remaining will be shorter for the older battery.*

Maximizing battery operating time

A battery's usefulness depends on how long it can supply power on a single charge.

How long the charge lasts in a battery depends on:

- How you configure the computer, for example, whether you enable battery-power saving options. The computer provides a battery save mode to conserve battery power. This mode has the following options:
  - Processing speed
  - Display auto off
  - HDD auto off
  - System auto off
  - LCD Brightness
- How often and how long you use the hard disk and the diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC card, to which the battery supplies power.
- Enabling Resume mode conserves battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Closing the display when you are not using the keyboard saves power.
- Operating time decreases at low temperatures.
- The condition of the battery terminals. Make sure the battery terminals stay clean by wiping them with a clean dry cloth before installing the Battery Pack.

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries retain data for the following approximate time periods:

Battery pack (1600 mAh)	2 days (Resume mode) 25 days (Boot mode)
RTC battery	1 month

Extending battery life

To maximize the life of your Battery Pack:

- At least once a month, disconnect the computer from a power source and operate it on battery power until the Battery Pack fully discharges. Before doing so, follow the steps below.

  1. Turn off the computer's power.
  2. Disconnect the AC adaptor and turn on the computer's power. If it does not turn on go to step 4.
  3. Operate the computer on battery power for five minutes. If the Battery Pack has at least five minutes of operating time, continue operating until the Battery Pack is fully discharged. If the battery LED flashes or there is some other warning to indicate a low battery, go to step 4.
  4. Connect the AC adaptor to the computer and the power cord to a power outlet. The DC IN LED should glow green, and the Battery LED should glow orange to indicate that the Battery Pack is being charged. If the DC IN indicator does not glow, power is not being supplied. Check the connections for the AC adaptor and power cord.
  5. Charge the Battery Pack until the Battery LED glows green.

- If you have extra Battery Packs, rotate their use.
- If you will not be using the system for an extended period, more than one month, remove the Battery Pack.
- Disconnect the AC adaptor when the battery is fully charged. Overcharging makes the battery hot and shortens life.
- If you are not going to use the computer for more than eight hours, disconnect the AC adaptor.
- Store spare Battery Packs in a cool dry place out of direct sunlight.

Replacing the Battery Pack

When the Battery Pack reaches the end of its operating life you will need to install a new one. The life of the Battery Pack is generally about 500 recharges. If the **Battery** indicator flashes orange shortly after fully recharging the battery, the Battery Pack needs to be replaced.

You might also replace a discharged Battery Pack with a charged spare when you are operating your computer away from an AC power source. This section explains how to remove and install Battery Packs.

Removing the Battery Pack

To replace a discharged Battery Pack, follow the steps below.

CAUTION: *When handling Battery Packs, be careful not to short circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the Battery Pack.*

1. Save your work.
2. Turn the computer's power off. Make sure the **Power** indicator is off.
3. Remove all cables connected to the computer.
4. Turn the computer upside down with the back of the computer facing you.
5. Slide the battery lock to free the Battery Pack for removal.
6. Fit your finger into the indentation next to the Battery Pack and lift it out.

CAUTION: *For environmental reasons, do not throw away a spent Battery Pack. Please return spent Battery Packs to your TOSHIBA dealer.*

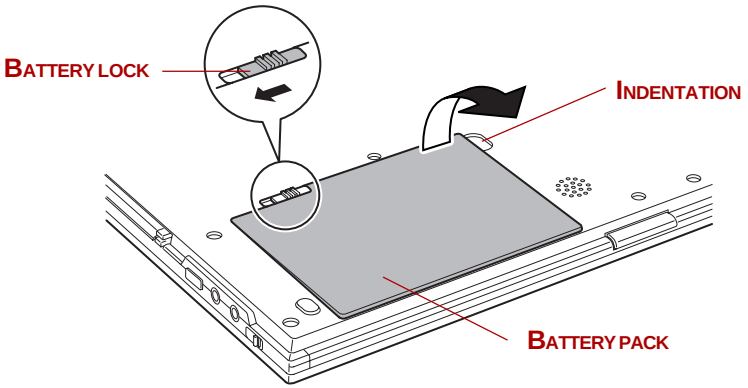


Figure 6-1 Removing the Battery Pack

Installing the Battery Pack

To install a Battery Pack, follow the steps below.

> ***CAUTION:*** *The Battery Pack is a lithium-ion polymer battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*

1. Be sure the computer's power is off and all cables are disconnected.
2. Insert the Battery Pack.

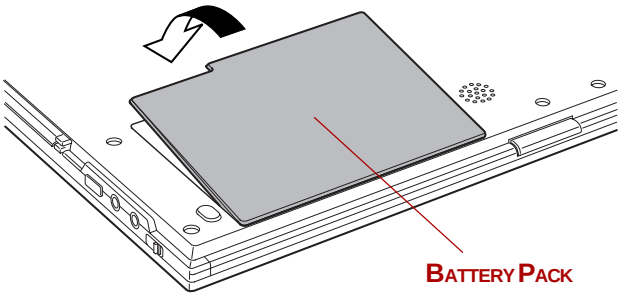


Figure 6-2 Installing the Battery Pack

3. Secure the battery lock.

Starting the computer by password

If you registered a password as supervisor or user, you must enter it to start the computer.

To start up the computer with the password, follow these steps:

1. Turn on the power as described in Chapter 3, *Getting Started* and the following message appears:

   ```
   Password =
   ```

2. Enter the password.
3. Press **Enter**. The computer displays the message below while it starts up.

   ```
   Valid password entered, system is now starting up.
   ```

   If you enter the password incorrectly, a buzzer sounds.

   NOTE: *If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.*

HW Setup and Passwords

This chapter explains how to use TOSHIBA HW Setup program to configure your computer and how to set passwords.

HW Setup

TOSHIBA HW Setup lets you configure settings for display, CPU, boot priority, USB, LAN, general, password and device config.

> ***NOTE:*** *If the supervisor password is set, access to the TOSHIBA HW Setup program can be prevented when the user password is used to log on to the computer.*
>
> *Refer to the Supervisor password readme file for details on enabling/disabling access to HW Setup. The path to the* readme *file is* **`C:\ProgramFiles\TOSHIBA\Windows Utilities\SVPWTool`**. *In the* **`SVPWTool`** *directory, open the* **readme.htm** *file.*

Accessing HW Setup

If you are using Windows XP, click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **TOSHIBA HW Setup** to run HW Setup.

If you are using Windows 2000, click **Start**, point to **Settings**, click **Control Panel** and select **TOSHIBA HW Setup** to run HW Setup.

HW Setup window

The HW Setup window contains the following tabs: display, CPU, boot priority, USB, LAN, general, password, device config.

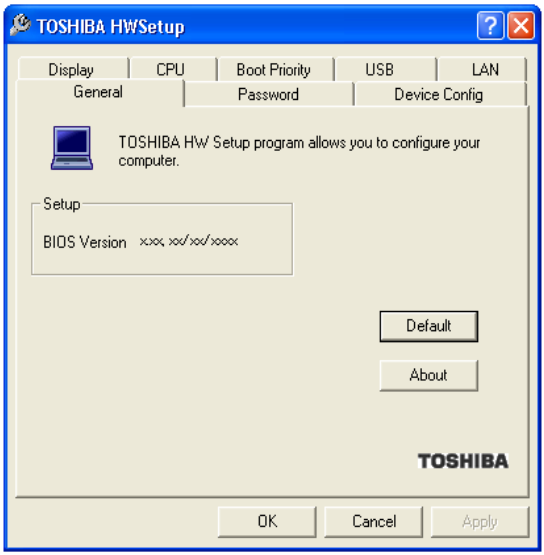


Figure 7-1 HW setup window (Windows XP)

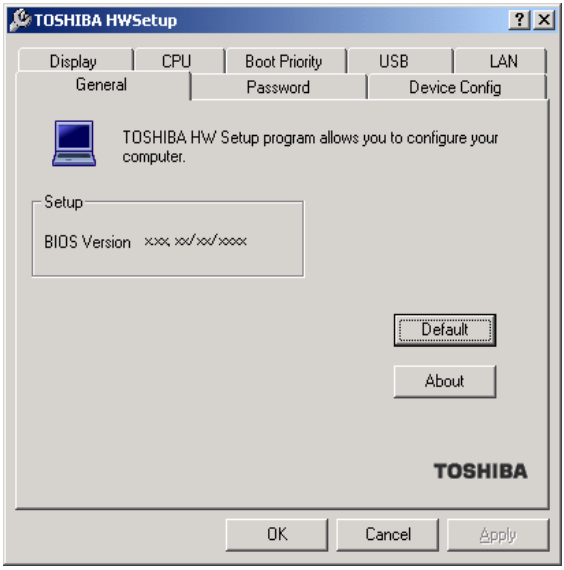


Figure 7-2 HW setup window (Windows 2000)

There are also three buttons: **OK**, **Cancel** and **Apply**.

OK Accepts your changes and closes the HW Setup window.

Cancel Closes the window without accepting your changes.

Apply Accepts all your changes without closing the HW Setup window.

General

This window displays the BIOS version and contains two buttons: **Default** and **About**.

Default	Return all HW Setup values to the factory settings.
About	Display the HW Setup version..

Setup

This field displays **BIOS Version** and date.

Password

User Password

This option allows you to set or reset the user password for power on.

Not Registered	Change or remove the password. (Default)
Registered	Set the password. A dialogue box will appear to let you set the password.

To enter a user password:

1. Select **Registered** to display the following prompt:

   Enter Password:

2. Enter a password of up to 10 characters. The character string you enter is displayed as a string of asterisks. For example, if you enter a password consisting of four characters, the display is shown as:

   Enter Password: **

   ***NOTE:** If you click the* **OK** *button before entering the password,* **Not registered** *will appear on the display.*

3. Click the **OK** button. The following message appears, allowing you to verify the password.

   Verify Password:

4. If character strings match, the password is registered and the display changes to:

   Registered

   If they do not match, the following message appears. You must repeat from step 1.

   Entry Error!!!

To delete a user password:

1. Select **Not Registered** to display the following prompt:

   Enter Password:

2. Enter the currently registered password. The character string you enter is displayed as a string of asterisks.

   Enter Password: **

   ***NOTE:** If you click the* **OK** *button before entering the password,* **Registered** *will appear on the display.*

3. Click the **OK** button. If the character string you enter matches the registered password, the password option is reset and the display changes to:

   Not registered

   If they do not match, the following message appears. You must repeat step 1.

   Incorrect Password!!!

   ***NOTE:** If you enter the password incorrectly three times, the screen will display:*

   Sorry, access denied!!! Powering off your machine then powering it back on again are required to regain access.

   You will not be able to access the password option in the HW Setup. In this case you must turn the power off and back on to retry the procedure.

4. Follow the same procedures described in the earlier section, *How to set the password*, to set a new user password.

Refer to the *Supervisor password* section later in this chapter for details on setting the supervisor password.

Device Config

Device Configuration

This option lets you set the device configuration.

All Devices	BIOS sets all devices.
Setup by OS	Operating system sets devices that it can control. (Default)

Display

This tab lets you customize your computer's display settings for either the internal LCD screen or for an external monitor.

Power On Display

Lets you set the display to be used when the computer is booted.

Auto-Selected	Selects an external monitor if one is connected. Otherwise, it selects the internal LCD. (Default)
Simultaneous	Selects both the internal LCD and external monitor for simultaneous display.

CPU

Dynamic CPU Frequency Mode

This option lets you choose from the following settings:

Dynamically Switchable	CPU power consumption and clock speed automatic switching function is enabled. When the computer is in use, CPU operation is automatically switched when necessary. (Default)
Always High	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at its fastest speed.
Always Low	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at low power consumption and low speed.

Boot Priority

Boot Priority Options

This option sets the priority for booting the computer. Select from the following settings:

HDD -> FDD -> CD-ROM -> LAN	The computer looks for bootable files in the following order: HDD, diskette drive, CD-ROM* and LAN. (Default)
FDD -> HDD -> CD-ROM -> LAN	The computer looks for bootable files in the following order: diskette drive, HDD, CD-ROM* and LAN.
HDD -> CD-ROM -> LAN -> FDD	The computer looks for bootable files in the following order: HDD, CD-ROM*, LAN and diskette drive.
FDD -> CD-ROM -> LAN -> HDD	The computer looks for bootable files in the following order: diskette drive, CD-ROM*, LAN and HDD.
CD-ROM -> LAN -> HDD -> FDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, HDD, diskette drive.
CD-ROM -> LAN -> FDD -> HDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, diskette drive and HDD.

You can override the settings and manually select a boot device by pressing one of the following keys while the computer is booting:

U	Selects the USB diskette drive.
N	Selects the Network.
1	Selects the primary HDD.
P	Selects the PC card HDD.
C	Selects the CD-ROM*.

This procedure does not affect the settings.

***** The CD-ROM is available only with the optional CD-ROM drive.

NOTES: *1. PC card HDD boot is supported only by the PC card slot on the computer. Support is guaranteed only for TOSHIBA PC card HDDs.*

2. When you assign a PC card HDD top priority, "PC" is not displayed. However, the PC card HDD takes the position of HDD in the Boot Priority Options list above.

Power on Boot Select

When this option is enabled, you can change the boot drive during start up. To change the boot drive, follow the steps below.

1. Hold down **F12** and boot the computer.
2. The following menu will be displayed with the following icons: Built-in HDD, CD-ROM, FDD, Network (LAN), PCA (ATA) card boot.

NOTE: *A bar will appear only under the selected device.*

3. Use the left/right cursor keys to highlight the boot device you want and press **Enter**.

NOTES: *1. If a supervisor password is set, the menu above does not appear when you use the user password to start the computer.*

2. The selection method above does not change the boot priority settings in HW Setup.

3. If you press a key other than one of those above or if the selected device is not installed, the system will boot according to the current setting in HW Setup.

USB

USB KB/Mouse Legacy Emulation

Use this option to enable or disable USB KB/Mouse Legacy Emulation. If your operating system does not support USB, you can still use a USB mouse and keyboard by setting the **USB KB/Mouse Legacy Emulation** item to **Enabled**.

Enabled	Enables the USB KB/Mouse Legacy Emulation. (Default)
Disabled	Disables the USB KB/Mouse Legacy Emulation.

USB-FDD Legacy Emulation

Use this option to enable or disable USB-FDD Legacy Emulation.

Enabled	Enables the USB-FDD Legacy Emulation. (Default)
Disabled	Disables the USB-FDD Legacy Emulation.

LAN

Wake-up on LAN

This features lets the computer's power be turned on when it receives a wake-up signal from the LAN.

Enabled	Enables Wake-up on LAN.
Disabled	Disables Wake-up on LAN. (Default)

CAUTION: *Do not install or remove an optional memory module while Wake-up on LAN is enabled.*

NOTE: *Wake-up on LAN does not work without the AC adaptor. Leave it connected, if you are using this feature.*

Built-in LAN

Enabled	Enables built-in LAN functions. (Default)
Disabled	Disables built-in LAN functions.

Supervisor password

Refer to the readme file of the Supervisor Password Utility for instructions on setting the Supervisor Password.

The path to the readme file is **C:\Program Files\TOSHIBA\Windows Utilities\SVPWTool**. In the **SVPWTool** directory, open the **readme.htm** file.

Optional Devices

Optional devices can expand the computer's capabilities and its versatility. The following optional devices are available from your TOSHIBA dealer:

Cards/memory

- PC cards
- SD cards
- Memory expansion

Power devices

- Battery Pack
- High Capacity 2nd Battery Pack
- Universal AC Adaptor
- Battery Charger

Peripheral devices

- USB FDD Kit
- Slim Port Replicator
- External monitor

Other

- Security lock

PC cards

The computer is equipped with a PC card expansion slot that can accommodate one 5 mm Type II card. Any PC card that meets industry standards (manufactured by TOSHIBA or other vendor) can be installed. The slots support 16-bit PC cards, including PC card 16's multifunction card and CardBus PC cards.

CardBus supports the new standard of 32-bit PC cards. The bus provides superior performance for the greater demands of multimedia data transmission.

Installing a PC card

A PC card slot, on the right side of the computer accommodates one 5 mm PC card (Type II).

You can install any industry standard PC card such as a SCSI adaptor or flash memory card.

A dummy card is installed to protect the slot.

Windows allows hot installation of PC cards, which means you can install a card while the computer's power is on.

NOTES: *1. Do not install a PC card while the computer is in standby or hibernation mode. Some cards might not work properly.*

2. An HDD or CD-ROM connected to a 16-bit PC card, might affect the performance of the computer's sound system and data transmission, including slower transmission speeds and dialing errors.

To install the PC card, follow the steps below.

1. A dummy card is installed in the computer when it is shipped. To eject the dummy, push the eject button and release it to extend the button.
2. Press the extended eject button to pop the card out slightly.

3. Pull the dummy card out and store it in a safe place. Install the dummy card whenever you remove the PC card.

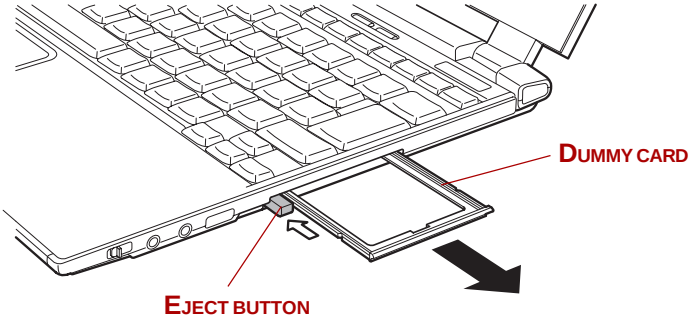


Figure 8-1 Removing the dummy card

4. Insert the PC card. When the card is almost fully seated, you will feel some resistance. Press gently to ensure a firm connection, but do not force the card into position.

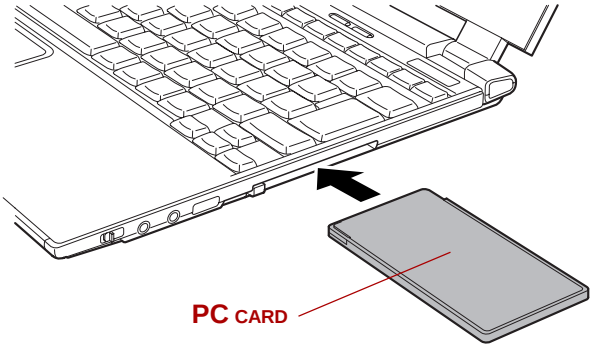


Figure 8-2 Inserting the PC card

5. Check the configuration in the HW Setup window to make sure it is appropriate for your card.

Removing a PC card

To remove the PC card, follow the steps below.

1. Push the eject button and release it to extend the button.
2. Press the extended eject button to pop the card out slightly.
3. Grasp the card and pull it out.

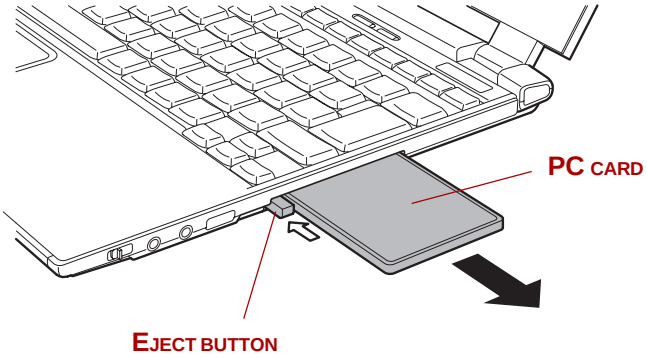


Figure 8-3 Removing the PC card

4. Insert the dummy card. Press gently to ensure a firm connection, but do not force the card into position. Do not leave the PC card slot empty.

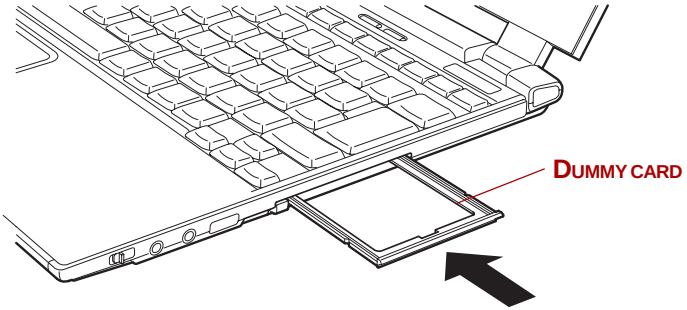


Figure 8-4 Inserting the dummy card

SD cards

The computer is equipped with an SD card slot that can accommodate Secure Digital flash memory cards with capacities of 8 MB, 16 MB, 32 MB, 64 MB and 128 MB. SD cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD card flash-memory. The cards have a high level of security and copy protection features.

The slot cannot accommodate MultiMedia cards.

> ***CAUTION:*** *Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.*

Installing an SD card

To install an SD card, follow the steps below.

1. Insert the SD card.
2. Press gently to ensure a firm connection.

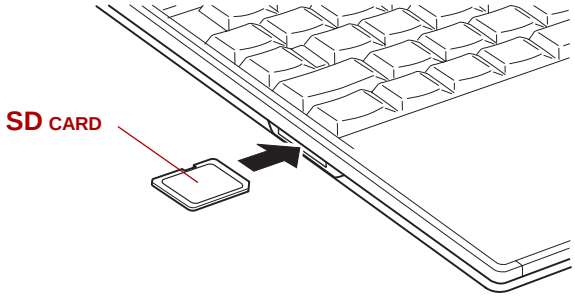


Figure 8-5 Inserting an SD card

> ***CAUTION:*** *Make sure the SD card is oriented properly before you insert it.*

Removing an SD card

To remove an SD card, follow the steps below.

1. a. In Windows XP, open the **Safety Remove Hardware** icon on the system tray and disable the SD card.
   b. In Windows 2000, open the **Unplug or Eject Hardware** icon on the system tray and disable the SD card.
2. Push in the card and release it to pop the card out slightly.
3. Grasp the card and remove it.

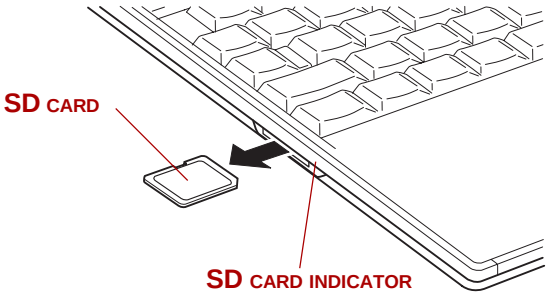


Figure 8-6 Removing an SD card

CAUTION: *Make sure the* **SD card** *indicator is out before you remove the card or turn off the computer's power. If you remove the card or turn off the power while the computer is accessing the card you may lose data or damage the card.*

Memory expansion

You can install additional memory in the computer's memory module to increase the amount of RAM.

CAUTION: *Use only memory modules approved by TOSHIBA.*

Installing memory module

To install a memory module, make sure the computer is in boot mode then:

1. Turn the computer off in boot mode. Refer to the *Turning off the power* section in Chapter 3.

   CAUTION: *Do not remove the memory module while the computer is in standby mode. The computer could hang up the next time you turn it on and data in memory will be lost. In either of the above cases, the standby configuration will not be saved.*

   The following message appears when you turn on the power:

   ```
   WARNING: RESUME FAILURE.
   PRESS ANY KEY TO CONTINUE.
   ```

   If the computer hangs up when you turn it on, perform the following: Press the power button and hold it down for five seconds, then turn the power on again.

2. Remove all cables connected to the computer.
3. Turn the computer upside down and remove the Battery Pack (refer to Chapter 6, *Power and Power-Up Modes*.)
4. Remove two screws securing the memory module cover.
5. Lift off the cover.

   NOTE: *Use a point size 0 Phillips screwdriver.*

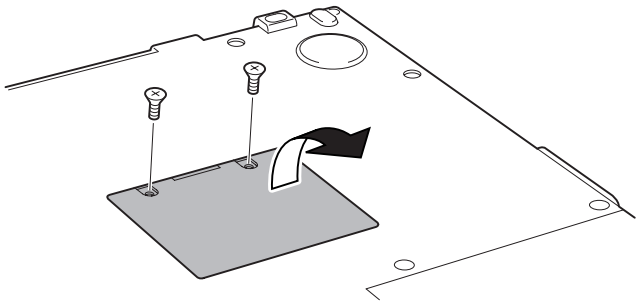


Figure 8-7 Removing the cover

6. Align the connector on the memory module with the computer's connector and carefully press the module above the connector to ensure a solid connection.

   CAUTIONS: *1. Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

   2. Press only the area above the connector. Do not press on the ICs.

7. Secure it with one screw that came with the memory module.

   CAUTION: *Use only the screw that came with the memory module.*

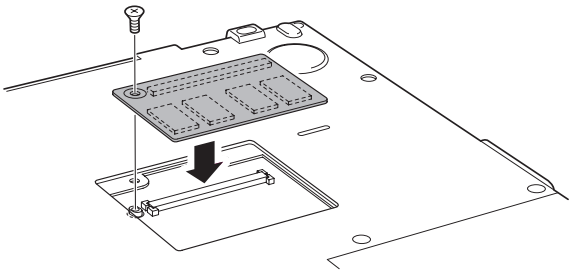


Figure 8-8 Inserting the memory module

8. Seat the cover and secure it with two screws.

   NOTE: *Use a point size 0 Phillips screwdriver.*

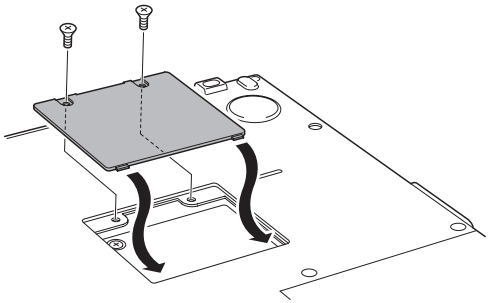


Figure 8-9 Seating the cover

9. When you turn the computer on, it should automatically recognize the total memory capacity. Use the HW Setup program to verify that the added memory is recognized. If it is not recognized, check the module's connection.

   NOTE: *When you view the memory display, the total amount will be reduced by 16 MB, which is used for VRAM.*

Removing memory module

To remove the memory module, make sure the computer is in boot mode then:

1. Turn the computer off and remove all cables connected to the computer.

   CAUTION: *Do not remove the memory module while the computer is in standby mode. The computer could hang up the next time you turn it on and data in memory will be lost. In either of the above cases, the standby configuration will not be saved.*

   The following message appears when you turn on the power:

   ```
   WARNING: RESUME FAILURE.
   PRESS ANY KEY TO CONTINUE.
   ```

   If the computer hangs up when you turn it on, perform the following: Press the power button and hold it down for five seconds, then turn the power on again.

2. Turn the computer upside down and remove the Battery Pack (refer to Chapter 6, *Power and Power-Up Modes*.)
3. Remove two screws securing the memory module cover.
4. Lift off the cover.
5. Remove one screw.
6. Fit two slender objects such as tweezers under the memory module on each side of the connector and pry up to disconnect the module.

7. Grasp the memory module by the sides and lift it out.

   CAUTION: *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

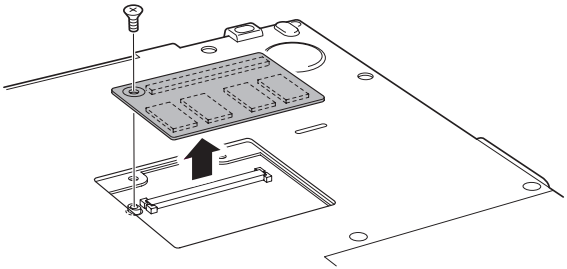


Figure 8-10 Removing the memory module

8. Seat the cover and secure it with two screws.

Battery Pack

You can increase the portability of the computer with Battery Packs (PA3154U). If you're away from an AC power source, you can replace a low battery with a fully charged one. See Chapter 6, *Power and Power-Up Modes*.

High Capacity 2nd Battery Pack

You can install an optional High Capacity 2nd Battery Pack in the computer. A High Capacity 2nd Battery Pack (PA3155U) is seated in a base that fits beneath the computer. It provides about twice the power and operating time as the standard Battery Pack. Refer to the *High Capacity 2nd Battery Pack Information Sheet*.

Universal AC Adaptor

If you frequently transport the computer between different sites such as your home and office, purchasing an AC adaptor for each location will reduce the weight and bulk of your carrying load: PA3153U.

Battery Charger

The battery charger (PA3091U) lets you charge a High Capacity 2nd Battery Pack (PA3155U) outside the computer.

USB FDD Kit

The 3 1/2" external diskette drive module can be connected to the USB port. For details on connecting the 3 1/2" external diskette drive module, refer to Chapter 4, *Operating Basics*.

Slim Port Replicator

In addition to the ports available on the computer, the Slim Port Replicator provides, an external monitor port, four USB ports, a port for charging a High Capacity 2nd Battery Pack, a LAN jack and a DC-IN socket. The Slim Port Replicator connects directly to the docking interface on the bottom of the computer. The AC adaptor connects the Slim Port Replicator to a power source.

> ***CAUTION:*** *The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*

Ports

The following ports and accessories are available on the Slim Port Replicator.

- One RJ45 LAN jack
- External monitor port
- DC IN socket
- Universal Serial Bus (four) ports
- Port to charge a High Capacity 2nd Battery Pack

High Capacity 2nd Battery Pack

To charge a High Capacity 2nd Battery Pack, follow the steps below.

1. Connect the computer to the Slim Port Replicator.
2. Connect the dedicated cable to the Slim Port Replicator and to a High Capacity 2nd Battery Pack.
3. Connect an AC Adaptor to the Slim Port Replicator.

NOTES: *1. You cannot use a High Capacity 2nd Battery Pack to power a Slim Port Replicator.*

2. You must connect the High Capacity 2nd Battery Pack and an AC adaptor to the Slim Port Replicator to charge the High Capacity 2nd Battery Pack.

External monitor

An external analog monitor can be connected to the external monitor port on the computer and Slim Port Replicator. The computer supports VGA and Super VGA video modes. To connect a monitor, follow the steps below.

CAUTION: *If an external monitor is connected to the computer, do not connect the Slim Port Replicator. First disconnect the external monitor from the computer then connect the Slim Port Replicator and use its external monitor port.*

NOTE: *The Resume feature can be used with an external monitor. Simply enable Resume and the computer will maintain the data as it is displayed on the external monitor.*

1. Connect the monitor to the external monitor port.
2. Turn the monitor's power on.

When you turn on the power, the computer automatically recognizes the monitor and determines whether it is color or monochrome.

You can use the HW Setup to select between **`Auto-Selected`** and **`Simultaneous`** displays. Refer to Chapter 7, *HW Setup and Passwords*.

If you have selected **Simultaneous** under the **Display** options of HW Setup, both the external monitor and the internal LCD will be active when you turn on the computer. If **Auto-Selected** is selected, only the external monitor will be active.

To change the display settings, press **Fn + F5**. If you disconnect the monitor before you turn the computer off, be sure to press **Fn + F5** to switch to the internal display. Refer to Chapter 5, *The Keyboard*, for details on using hotkeys to change the display setting.

> ***NOTE:*** *If you set* **Simultaneous** *for the computer's display, you must set the computer's display resolution to the same as that of the external monitor or other device, such as a projector.*

Security lock

A security lock enables you to anchor your computer to a desk or other heavy object to help prevent unauthorized removal of the computer.

Attach one end of a cable to the desk and the other end to the security lock slot on the left side of the computer.

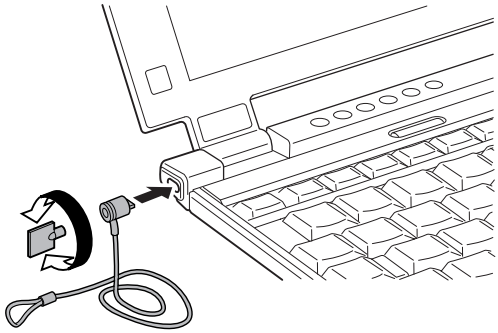


Figure 8-11 Security lock

Troubleshooting

TOSHIBA designed the computer for durability. However, should problems occur, following the procedures in this chapter can help to determine the cause.

All readers should become familiar with this chapter. Knowing what might go wrong can help prevent problems from occurring.

Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

- Stop immediately when you recognize a problem exists. Further action may result in data loss or damage. You may destroy valuable problem-related information that can help solve the problem.
- Observe what is happening. Write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using **PrtSc**.

The questions and procedures offered in this chapter are meant as a guide, they are not definitive problem solving techniques. Many problems can be solved simply, but a few may require help from your dealer. If you find you need to consult your dealer or others, be prepared to describe the problem in as much detail as possible.

Preliminary checklist

Consider the simplest solution first. The items in this checklist are easy to fix and yet can cause what appears to be a serious problem.

- Make sure you turn on all peripheral devices before you turn on the computer. This includes your printer and any other external device you are using.
- Before you attach an external device, turn the computer off. When you turn the computer back on it recognizes the new device.
- Make sure all options are set properly in the setup program.
- Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.

- Check that your diskette is correctly inserted and that the diskette's write protect tab is correctly set.

Make notes of your observations and keep them in a permanent error log. This will help you describe your problems to your dealer. If a problem recurs, the log will help you identify the problem faster.

Analyzing the problem

Sometimes the system gives clues that can help you identify why it is malfunctioning. Keep the following questions in mind:

- Which part of the system is not operating properly: keyboard, diskette drives, hard disk drive, printer, display. Each device produces different symptoms.
- Is the operating system configuration set properly? Check the configuration options.
- What appears on the display screen? Does it display any messages or random characters? Print a copy of the screen if you have a printer attached. Look up the messages in the software and operating system documentation. Check that all connecting cables are correctly and firmly attached. Loose cables can cause erroneous or intermittent signals.
- Do any icons light? Which ones? What color are they? Do they stay on or blink? Write down what you see.
- Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them to your dealer.

Software The problems may be caused by your software or diskette. If you cannot load a software package, the media (usually a diskette) may be damaged or the program might be corrupted. Try loading another copy of the software.

If an error message appears while you are using a software package, check the software documentation. These documents usually include a problem solving section or a summary of error messages.

Next, check any error messages in the OS documentation.

Hardware If you cannot find a software problem, check your hardware. First run through the items in the preliminary checklist above. If you still cannot correct the problem, try to identify the source. The next section provides checklists for individual components and peripherals.

Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- System start-up
- Self test
- Power
- Password
- Keyboard
- LCD panel
- Hard disk drive
- Diskette drive
- Infrared port
- Pointing device
- PC card
- SD card
- Monitor
- Sound system
- USB
- Modem
- LAN
- Wireless LAN

System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

Self test

When the computer starts up, the self-test will be run automatically, and the following will be displayed:

```
In Touch with Tomorrow

TOSHIBA
```

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system. Depending on how the Boot Priority is set in the HW Setup program, the computer tries to load first from drive A then from drive C, or first from drive C then from drive A.

If any of the following conditions are present, the self test failed:

- The computer stops and does not proceed to display information or messages.
- A beep sounds, and after a few seconds no new messages appear.
- Random characters appear on the screen, and the system does not function normally.
- The screen displays an error message.

Turn off the computer and check all cable connections. If the test fails again, contact your dealer.

Power

When the computer is not plugged into an AC adaptor, the Battery Pack is the primary power source. However, your computer has a number of other power resources, including intelligent power supply and Real Time Clock battery. These resources are interrelated and any one could affect apparent power problems. This section provides check lists for AC adaptor and the main battery. If you cannot resolve a problem after following them, the cause could lie with another power resource. In such case, contact your dealer.

Overheating power down

If the computer's internal temperature becomes too high, the computer will automatically enter Hibernation or Resume mode and shut down.

Problem	Procedure
Computer shuts down and **DC IN** indicator blinks orange	Leave the computer off until the **DC IN** indicator stops blinking. ***NOTE:*** *It is recommended to leave the computer off until the its interior reaches room temperature even though the* **DC IN** *indicator stops blinking.* If the computer has reached room temperature and still does not start, or if it starts but shuts down quickly contact your dealer.
Computer shuts down and its DC IN indicator is flashing green	Indicates a problem with the heat dispersal system. Please contact your dealer.

AC power

If you have trouble turning on the computer with the AC adaptor connected, check the **DC IN** indicator. Refer to Chapter 6, *Power and Power-Up Modes* for more information.

Problem	Procedure
AC adaptor doesn't power the computer (**DC IN** indicator does not glow green)	Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.

	Check the condition of the cord and terminals. If the cord is frayed or damaged, replace it. If the terminals are soiled, wipe them with cotton or a clean cloth. If the AC adaptor still does not power the computer, contact your dealer.

Battery

If you suspect a problem with the battery, check the **DC IN** indicator as well as the **Main battery** and **Secondary battery** indicators. For information on indicators and battery operation see Chapter 6, *Power and Power-Up Modes*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.
Battery doesn't charge when the AC adaptor is attached (**Main battery** or **Secondary battery** indicator does not glow orange.)	If the battery is completely discharged, it will not begin charging immediately. Wait a few minutes. If the battery still does not charge, make sure the outlet is supplying power. Test it by plugging in an appliance.
	Check whether the battery is hot or cold to the touch. If the battery is too hot or too cold, it will not charge properly. Let it reach room temperature.
	Unplug the AC adaptor and remove the battery to make sure the terminals are clean. If necessary wipe them with a soft dry cloth dipped in alcohol. Connect the AC adaptor and replace the battery. Make sure it is securely seated.

	Check the **Battery** indicator. If it does not glow, let the computer charge the battery for at least 20 minutes. If the **Battery** indicator glows after 20 minutes, let the battery continue to charge at least another 20 minutes before turning on the computer. If the indicator still does not glow, the battery may be at the end of its operating life. Replace it. If you do not think the battery is at the end of its operating life, see your dealer.
Battery doesn't power the computer as long as expected	If you frequently recharge a partially charged battery, the battery might not charge to its full potential. Fully discharge the battery, then try to charge it again.
	Check the power consumption settings in Power Saver utility. Consider using a power saving mode.

Password

Problem	Procedure
Cannot enter password	Refer to the *Password* section in Chapter 7, *HW Setup and Passwords*.

Keyboard

Keyboard problems can be caused by your setup configuration. For more information refer to Chapter 5, *The Keyboard*.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn** + **F10** and try typing again.
Output to screen is garbled	Make sure the software you are using is not remapping the keyboard. Remapping involves reassigning the meaning of each key. See your software's documentation. If you are still unable to use the keyboard, consult your dealer.

LCD panel

Apparent LCD problems may be related to the computer's setup. Refer to Chapter 7, *HW Setup and Passwords*, for more information.

Problem	Procedure
No display	Press hotkeys **Fn** + **F5** to change the display priority, to make sure it is not set for an external monitor.
Problems above remain unresolved or other problems occur	Refer to your software's documentation to determine if the software is causing the difficulty.
	Run the diagnostic test. Contact your dealer if the problems continue.

Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	Check if a diskette is in the diskette drive. If a diskette is inserted, remove it and reboot.
	There may be a problem with your operating system files. Refer to your OS documentation.
Slow performance	Your files may be fragmented. Run SCANDISK and defragmenter to check the condition of your files and disk. Refer to your OS documentation or online HELP for information on running SCANDISK and the defragmenter.
	As a last resort, reformat the hard disk. Then, reload the operating system and other files. If problems persist, contact your dealer.

Diskette drive

For more information, refer to Chapter 4, *Operaing Basics*.

Problem	Procedure
Drive does not operate	There may be a faulty cable connection. Check the connection to the computer and to the drive.
Some programs run correctly but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software needs.
You cannot access the external 3 1/2" diskette drive	Try another diskette. If you can access the diskette, the original diskette (not the drive) is probably causing the problem. If problems persist, contact your dealer.

Infrared port

Refer also to the documentation for your IrDA compatible device and related software.

Problem	Procedure
Infrared devices do not work as expected	Check that the device is connected to an electric outlet. Make sure the outlet is supplying power by plugging in an appliance.
	Make sure there is no obstruction blocking communication between the computer and the target device. If problems persist, contact your dealer.

Pointing device

If you are using a USB mouse, also refer to the *USB* section in this chapter and to your mouse documentation.

Touch Pad

Problem	Procedure
On-screen pointer does not respond to Pad operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
Double-tapping does not work	Try changing the double-click speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed and click **OK**. If problems persist, contact your dealer.

USB mouse

Problem	Procedure
On-screen pointer does not respond to cPad operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
	Make sure the mouse is properly connected to the USB port.
Double-tapping does not work	Try changing the double-click speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed and click **OK**.
The mouse pointer moves erractically	The mouse might be dirty. Refer to your mouse documentations for instructions on cleaning. If problems persist, contact your dealer.

PC card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
PC card error occurs	Reseat the PC card to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.
	Check the card's documentation.
	If problems persist, contact your dealer.

SD card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
SD card error occurs	Reseat the SD card to make sure it is firmly connected.
	Check the card's documentation.
	If problems persist, contact your dealer.

Monitor

Refer also to Chapter 8, *Optional Devices*, and to your monitor's documentation.

Problem	Procedure
Monitor does not turn on	Make sure that the external monitor's power switch is on. Confirm that the external monitor's power cable is plugged into a working power outlet.
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hotkeys **Fn + F5** to change the display priority and make sure it is not set for the internal display.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly.
	If problems persist, contact your dealer.

Sound system

Refer also to documentation for your audio devices.

Problem	Procedure
No sound is heard	Adjust the volume control dial.
	Check the software volume settings.
	Make sure the headphone connection is secure.
	If problems persist, contact your dealer.

USB

Refer also to your USB device's documentation.

Problem	Procedure
USB device does not work	Check for a firm cable connection between the USB ports on the computer and the USB device.
	Make sure the USB device drivers are properly installed. Refer to your Windows documentation for information on checking the drivers.
	If you are using an operating system that does not support USB, you can still use a USB mouse and/or USB keyboard. If these devices do not work, make sure the USB KB/Mouse Legacy Emulation item in HW Setup is set to **Enabled**. If problems persist, contact your dealer.

Modem

Refer to the online help files for Appendix C and D.

Problem	Procedure
Communication software can't initialize modem	Make sure the computer's internal modem settings are correct. Refer to *Modem* Properties in the Control Panel.
You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled. You can also use the ATX command. Refer to the online help files for Appendix C, AT Commands.

You place a call, but a connection can't be made	Make sure the settings are correct in your communications application.
After making a call you can't hear a ring	Make sure the tone or pulse selection in your communications application is set correctly. You can also use the ATD command. Refer to the online help files for Appendix C, AT Commands.
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A **CONNECT** display is quickly replaced by **NO CARRIER**	Check the error control setting in your communications application. You can also use the AT\N command. Refer to the online help files for Appendix C, AT Commands.
Character display becomes garbled during a communication	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.
You cannot receive an incoming call	Check the rings before auto answer setting in your communications application. You can also use the ATS0 command. Refer to the online help files for Appendix D, S-registers. If problems persist, contact your dealer.

LAN

Problem	Procedure
Cannot access LAN	Check for a firm cable connection between the LAN jack and the LAN HUB. If problems persist, consult your LAN administrator.

Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Wireless LAN	Make sure the computer's wireless communication switch is set to on. If problems persist, consult your LAN administrator.

TOSHIBA support

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact TOSHIBA for additional technical assistance.

Before you call

Some problems you experience may be related to software or the operating system, it is important to investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation for software and peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions. Call the software company's technical support for assistance.
- Consult the dealer you purchased your computer and/or software from. They are your best sources for current information and support.

Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the nearest location listed on the below.

Outside of Europe

Australia

TOSHIBA Australia Pty. Ltd.
Information Systems Division
84-92 Talavera Road
North Ryde N.S.W. 2113
Sydney

Canada

TOSHIBA of Canada Ltd.
191 McNabb Street,
Markham, Ontario
L3R8H2

Singapore

TOSHIBA Singapore Pte. Ltd.
438B Alexandra Road #06-01
Alexandra Technopark
Singapore 119968

United States of America

TOSHIBA America Information Systems, Inc.
9740 Irvine Boulevard
Irvine, California 92618
USA

In Europe

Germany & Austria
TOSHIBA Europe (I.E.) GmbH
Geschäftsbereich,
Deutschland-Österreich
Hammfelddamm 8,
D-41460 Neuss, Germany

France
TOSHIBA Systèms France S.A.
7, Rue Ampère B.P. 131,
92804 Puteaux Cedex

Netherlands
TOSHIBA Information Systems,
Benelux B.V.
Rivium Boulevard
41 2909 LK Capelle a/d IJssel

Spain
TOSHIBA Information Systems,
ESPAÑA
Parque Empresarial San Fernando
Edificio Europa, lª Planta,
Escalera A 28830 Madrid

United Kingdom
TOSHIBA Information Systems (U.K.)
Ltd.
TOSHIBA Court
Weybridge Business Park
Addlestone Road
Weybridge, Surrey KT15 2UL

The Rest of Europe
TOSHIBA Europe (I.E.) GmbH
Geschäftsbereich,
Deutschland-Österreich
Hammfelddamm 8,
D-41460 Neuss, Germany

Appendix A

Specifications

This appendix summarizes the computer's technical specifications.

Physical Dimensions

Size

With TFT display	289 (w) x 229 (d) x 14.9/19.1 (h) millimeters (does not include the thicker part of the bottom of the computer)

Weight

Hard disk	Memory	Display	Kilograms
20GB	256MB	12" XGA-TFT	1.19 kg typical*

* Weight will vary depending on whether the computer has Wireless LAN capability.

Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Nonoperating	-20°C (-4°F) to 65°C (149°F)	10% to 90%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	
Conditions	**Altitude (from sea level)**	
Operating	-60 to 3,000 meters	
Nonoperating	-60 to 10,000 meters *maximum*	

Power Requirements

AC adaptor	100-240 volts AC 50 or 60 hertz (cycles per second)

Computer	15VDC
	3.0 amperes

Built-in Modem

Network control unit (NCU)

Type of NCU	AA
Type of line	Telephone line (analog only)
Type of dialing	Pulse Tone
Control command	AT commands EIA-578 commands
Monitor function	Computer's speaker

Communication specifications

Communication system	Data:	Full duplex
	Fax:	Half duplex
Communication protocol	Data	
	ITU-T-Rec (Former CCITT)	V.21/V.22/V.22bis/V.32 /V.32bis/V.34/V.90
	Bell	103/212A
	Fax	
	ITU-T-Rec (Former CCITT)	V.17/V.29/V.27ter /V.21 ch2
Communication speed	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/ 16800/19200/21600/24000/26400/28800/31200/ 33600 bps Data reception only with V.90 28000/29333/30666/32000/33333/34666/36000/ 37333/38666/40000/41333/42666/44000/45333/ 46666/48000/49333/50666/52000/53333/54666/56000 bps Fax 2400/4800/7200/9600/12000/14400 bps	
Error correcting	MNP class 4 and ITU-T V.42	
Data compression	MNP class 5 and ITU-T V.42bis	

Display Controller and Modes

Display controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Super VGA (SVGA) and Extended Graphics Array (XGA) support for the internal LCD and external monitors. The displays up to 1024 x 768 (XGA). The controller also supports simultaneous display on the internal LCD and on an external monitor.

A high-resolution external monitor connected to the computer can display up to 1600 horizontal and 1200 vertical pixels and up to 64K colors.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

The computer's display controller supports all VGA and SVGA modes, the most widely used industry standards.

Video modes

The computer supports video modes defined in the table below. If your application offers a selection of mode numbers that do not match the numbers on the table, select a mode based on mode type, resolution, character matrix, number of colors and refresh rates. Also, consider the following points:

- If your software supports both graphics and text modes, the screen display may appear to operate faster using a text mode.
- The LCD's highest graphics resolution is 1024 horizontal x 768 vertical lines.
- If a resolution greater than the display's physical capacity is selected, the display driver renders a virtual display.

Table Video modes

Video mode	*Type*	*Resolution*	*Character matrix (pels)*	*LCD colors*	*CRT colors*	*Scanning frequency Vertical*
0, 1	VGA Text	40 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
2, 3	VGA Text	80 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70Hz
0*, 1*	VGA Text	40 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
2*, 3*	VGA Text	80 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70Hz
0+, 1+	VGA Text	40 x 25 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
2+, 3+	VGA Text	80 x 25 Characters	8(9) x 16	16 of 256K	16 of 256K	70Hz
4, 5	VGA Grph	320 x 200 Pels	8 x 8	4 of 256K	4 of 256K	70Hz
6	VGA Grph	640 x 200 Pels	8 x 8	2 of 256K	2 of 256K	70Hz
7	VGA Text	80 x 25 Characters	8(9) x 14	Mono	Mono	70Hz
7+	VGA Text	80 x 25 Characters	8(9) x 16	Mono	Mono	70Hz

Table Video modes continued

Video mode	*Type*	*Resolution*	*Character matrix (pels)*	*LCD colors*	*CRT colors*	*Scanning frequency Vertical*
D	VGA Grph	320 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70Hz
E	VGA Grph	640 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70Hz
F	VGA Grph	640 x 350 Pels	8 x 14	Mono	Mono	70Hz
10	VGA Grph	640 x 350 Pels	8 x 14	16 of 256K	16 of 256K	70Hz
11	VGA Grph	640 x 480 Pels	8 x 16	2 of 256K	2 of 256K	60Hz
12	VGA Grph	640 x 480 Pels	8 x 16	16 of 256K	16 of 256K	60Hz
13	VGA Grph	320 x 200 Pels	8 x 8	256 of 256K	256 of 256K	70Hz
	SVGA Grph	640 x 480 Pels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1280 x 1024 Pels		256 of 256K	256 of 256K	60Hz 75Hz 85Hz
	SVGA Grph	1600 x 1200 Pels		256 of 256K	256 of 256K	60Hz

Table Video modes continued

Video mode	*Type*	*Resolution*	*Character matrix (pels)*	*LCD colors*	*CRT colors*	*Scanning frequency Vertical*
	SVGA Grph	640 x 480 Pels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1280 x 1024 Pels		64K of 64K	64K of 64K	60Hz 75Hz 85Hz
	SVGA Grph	1600 x 1200 Pels		64K of 64K	64K of 64K	60Hz
	SVGA Grph	640 x 480 Pels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	800 x 600 Pels		16M of 16M	16M of 16M	60Hz 75Hz 85Hz
	SVGA Grph	1024 x 768 Pels		16M of 16M	16M of 16M	60Hz 75Hz

AT Commands

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

This chapter describes AT commands for data mode. Fax and voice commands are taken care of by application software.

The format for entering AT commands is:

ATXn

where **X** is the AT command, and **n** is the specific value for that command. After you type in the command press **Enter**.

Any command issued is acknowledged with a response in either text or numeric values known as result codes.

All commands and command-values accepted by the modem are described in this section; any entry other than those listed results in an error.

+++ Escape sequence

The escape sequence allows the modem to exit data mode and enter on-line command mode. While in on-line command mode, you can communicate directly to your modem using AT commands. Once you finish, you can return to data mode using the ATO command.

A pause, the length of which is set by Escape Guard Time (S12), must be completed after an escape sequence is entered, This pause prevents the modem from interpreting the escape sequence as data.

The value of the escape sequence character may be changed using register S2.

A/ Repeat last command

This command repeats the last command string entered. Do not precede this command with an AT prefix or conclude it by pressing **Enter**.

A Answer command

This command instructs the modem to go off-hook and answer an incoming call.

Bn Communication standard setting

This command determines the communication standard CCITT or Bell.

B0 Selects CCITT V.22 mode when the modem is at 1200 bps.

B1 Selects Bell 212A when the modem is at 1200 bps (default).

B15 Selects V.21 when the modem is at 300 bps.

B16 Selects Bell 103J when the modem is at 300 bps (default).

Result Codes:

0K n=0,1,15,16

ERR0R Otherwise

Dn Dial

This command instructs the modem to dial a telephone number. Enter n (the telephone number and any modifiers) after the ATD command.

Any digit or symbol (0-9, *, #, A, B, C, D) may be dialed as touch-tone digits. Characters such as spaces, hyphens, and parentheses do not count. They are ignored by the modem, but you may want to include them to make the number and modifiers easier to read.

The following may be used as phone number modifiers:

P Pulse dialing.

T Touch-tone dialing (default).

, Pause during dialing. Pause for time specified in Register S8 before processing the next character in the dial string.

W Wait for dial tone. Modem waits for a second dial tone before processing the dial string.

@ Wait for quiet answer. Wait for five seconds of silence after dialing the number. If silence is not detected, the modem sends a NO ANSWER result code back to the caller.

! Hook flash. Causes the modem to go on-hook for 0.5 seconds and then return to off-hook.

; Return to command mode. Causes the modem to return to command mode after dialing a number, without disconnecting the call.

S=n Dial a telephone number previously stored using the &Zn=X command (See &Zn=X command for more information). The range is 0-3.

En Echo command

This command controls whether or not the characters entered from your computer keyboard are displayed on your monitor (echoed) while the modem is in command mode.

E0 Disables echo to the computer.

E1 Enables echo to the computer (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Hn Hook control

This command instructs the modem to go on-hook to disconnect a call, or off-hook to make the phone line busy.

H0 Modem goes on-hook (default).

H1 Modem goes off-hook.

Result Codes:

OK n=0,1

ERROR Otherwise

In Request ID information

This command displays product information about the modem.

I0 Returns modem identity string and driver version number.

I3 Same as **I0**.

I9 Returns region ID in English.

Result Codes:

OK n=0,3,9

ERROR Otherwise

Ln Monitor speaker volume

This command sets speaker volume to low, medium, or high.

L0 Low volume.

L1 Low volume. (Same as **L0**)

L2 Medium volume (default).

L3 High volume.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

Mn Monitor speaker mode

This command turns the speaker on or off.

M0 The speaker is off.

M1 The speaker is on until the modem detects the carrier signal (default).

M2 The speaker is always on when modem is off-hook.

M3 Speaker is on until the carrier is detected, except when dialing.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

Nn Modulation handshake

This command controls whether or not the local modem performs a negotiated handshake at connection time with the remote modem when the communication speed of the two modems is different.

N0 When originating or answering, this is for handshake only at the communication standard specified by S37 and the ATB command.

N1 When originating or answering, begin the handshake at the communication standard specified by S37 and the ATB command (default).

During handshake, a lower transmission speed may be selected.

Result Codes:

OK n=0,1

ERROR Otherwise

On Return on-line to data mode

O0 Instructs the modem to exit on-line command mode and return to data mode (see AT escape sequence, +++).

O1 This command issues a retrain before returning to on-line data mode.

O3 This command issues a rate renegotiation before returning to on-line data mode.

Result Codes:

OK n=0,1,3

ERROR Otherwise

P Select pulse dialing

This command configures the modem for pulse (non touch-tone) dialing. Dialed digits are pulsed until a T command or dial modifier is received. Tone dial is the default setting.

Qn Result code control

Result codes are informational messages sent from the modem and displayed on your monitor. Basic result codes are **OK**, **CONNECT**, **RING**, **NO CARRIER**, and **ERROR**. The ATQ command allows the user to turn result codes on or off.

Q0 Enables modem to send result codes to the computer (default).

Q1 Disables modem from sending result codes to the computer.

Result Codes:

OK n=0,1

ERROR Otherwise

T Select tone dialing

This command instructs the modem to send DTMF tones while dialing. Dialed digits are tone dialed until a P command or dial modifier is received. This is the default setting.

Vn DCE response format

This command controls whether result codes (including call progress and negotiation progress messages) are displayed as words or their numeric equivalents.

V0 Displays result codes as digits.

V1 Displays result codes as text (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Xn Result code selection, call progress monitoring

This command selects which result codes will be used by the modem.

Command	Dial tone detect	Busy signal detect	Supported Result Code
X0	Disable	Disable	OK, CONNECT, RING, NO CARRIER, ERROR
X1	Disable	Disable	OK, RING, NO CARRIER, ERROR, CONNECT <RATE>
X2	Enable	Disable	OK, RING, NO CARRIER, ERROR, NODIALTONE, CONNECT <RATE>
X3	Disable	Enable	OK, RING, NO CARRIER, ERROR, BUSY, CONNECT <RATE>, BLACKLISTED
X4 (default)	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

X5	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, RRING, NO BONGTONE, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

Dial tone detect

Disabled: The modem dials a call regardless of whether it detects a dial tone.

Enabled: The modem dials only upon detection of a dial tone, and disconnects the call if the dial tone is not detected within 10 seconds.

Busy tone detect

Disabled: The modem ignores any busy tones it receives.

Enabled: The modem monitors for busy tones.

Result Codes:

OK n=0,1,2,3,4,5

ERROR Otherwise

Zn Recall stored profile

The modem performs a soft reset and restores (recalls) the configuration profile according to the parameter supplied. If no parameter is specified, zero is assumed. Either Z0 or Z1 restores the profile.

Result Codes:

OK n=0,1

ERROR Otherwise

&Cn Data Carrier Detect (DCD) control

Data Carrier Detect is a signal from the modem to the computer indicating that a carrier signal is being received from a remote modem. DCD normally turns off when the modem no longer detects the carrier signal.

&C0 The state of the carrier from the remote modem is ignored. DCD circuit is always on.

&C1 DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected (default).

Result Codes:

0K n=0,1

ERR0R Otherwise

&Dn DTR control

This command interprets how the modem responds to the state of the DTR signal and changes to the DTR signal.

&D0 Ignore. The modem ignores the true status of DTR and treats it as always on. This should only be used if your communication software does not provide DTR to the modem

&D1 If the DTR signal is not detected while in on-line data mode, the modem enters command mode, issues an **0K** result code, and remains connected.

&D2 If the DTR signal is not detected while in on-line data mode, the modem disconnects (default).

&D3 Reset on the on-to-off DTR transition.

Result Codes:

0K n=0,1,2,3

ERR0R Otherwise

&F Load factory settings

This command loads the configuration stored and programmed at the factory. This operation replaces all of the command options and the S-register settings in the active configuration with factory values.

&F Recall factory setting as active configuration.

&Gn V.22bis guard tone control

This command determines which guard tone, if any, to transmit while transmitting in the high band (answer mode). This command is only used in V.22 and V.22bis mode. This option is not used in North America and is for international use only.

&G0 Guard tone disabled (default).

&G1 Sets guard tone to 550 Hz.

&G2 Sets guard tone to 1800 Hz.

Result Codes:

OK n=0,1,2

ERROR Otherwise

&Kn Local flow control selection

&K0 Disable flow control.

&K3 Enable CTS/RTS flow control (default).

&K4 Enable XON/XOFF flow control.

Result Codes:

OK n=0,3,4

ERROR Otherwise

&Pn Select Pulse Dial Make/Break Ratio (WW)

&P0 Selects 39% - 61% make/break ratio at 10 pulses per second.

&P1 Selects 33% - 67% make/break ratio at 10 pulses per second.

&P2 Selects 33% - 67% make/break ratio at 20 pulses per second.

Result Codes:

OK n=0,1,2

ERROR Otherwise

&Tn Self-test commands

These tests can help to isolate problems if you experience periodic data loss or random errors.

&T0 Abort. Stops any test in progress.

&T1 Local analog loop. This test verifies modem operation, as well as the connection between the modem and computer. Any data entered at the local DTE is modulated, then demodulated, and returned to the local DTE. To work properly, the modem must be off-line.

Result Codes:

OK n=0

CONNECT n=1

ERROR Otherwise

&V Display Current Configuration

This command displays the current configuration of the modem. If nonvolatile memory is supported the stored profiles are displayed as well.

&V View profiles.

&W Store current configuration

Saves the current (active) configuration (profile), including S-Registers.

The current configuration comprises a list of storable parameters illustrated in the **&V** command. These settings are restored to the active configuration upon receiving a **Zn** command or at power up. Refer to the **&V** command.

&W Stores the current configuration.

&Zn=x Store telephone number

This command is used to store up to four dialing strings in the modem's nonvolatile memory for later dialing. The format for the command is **&Zn**="stored number" where n is the location 0-3 to which the number should be written. The dial string may contain up to 34 characters. The ATDS=n command dials using the string stored in location n.

Result codes:

OK n=0, 1, 2, 3

ERROR Otherwise

\Nn Error control mode selection

This command determines the type of error control used by the modem when sending or receiving data.

\N0 Buffer mode. No error control.

\N1 Direct mode.

\N2 MNP or disconnect mode. The modem attempts to connect using MNP2-4 error control procedures. If this fails, the modem disconnects.

This is also known as MNP reliable mode.

\N3 V.42, MNP, or buffered (default).

The modem attempts to connect in V.42 error control mode. If this fails, it attempts to connect in MNP mode. If this fails, it connects in buffer mode and continues operation. This is also known as V.42/MNP auto reliable mode (same as **&Q5**).

\N4 V.42 or disconnect. The modem attempts to connect in V.42 error control mode. If this fails, the modem disconnects.

\N5 V.42. MNP or buffered (same as **\N3**).

\N7 V.42. MNP or buffered (same as **\N3**).

Result Codes:

OK n=0,1,2,3,4,5,7

ERROR Otherwise

\Qn Local flow control selection

\Q0 Disable flow control.

\Q1 XON/XOFF software flow control.

\Q3 CTS/RTS to DTE (default).

Result Codes:

OK n=0,1,3

ERROR Otherwise

\Vn Protocol result code

\V0 Disable protocol result code appended to DCE speed.

\V1 Enable protocol result code appended to DCE speed (default).

Result Codes:

OK n=0,1

ERROR Otherwise

%B View numbers in blacklist

If blacklisting is in effect, this command displays the numbers for which the last call attempted in the past two hours failed. The ERROR result code appears in regions that do not require blacklisting.

%Cn Data compression control

This command determines the operation of V.42bis and MNP class 5 data compression. On-line changes do not take effect until a disconnect occurs first.

%C0 V.42bis/MNP 5 disabled. No data compression.

%C3 V.42bis/MNP 5 enabled. Data compression enabled (default).

Result Codes:

OK n=0,3

ERROR Otherwise

S-registers

S-registers contain the settings that determine how a number of functions of the internal modem operate. For example, how many times to let the telephone ring before the modem answers and how long to wait before it hangs up if a connection fails. You can also customize certain AT commands such as the escape sequence and command line termination.

The contents of the registers are changed automatically when you modify corresponding settings in your communication software. If you choose, however, you can display and edit the contents of the registers manually when the modem is in command mode. If the value is out of the acceptable range, then an error is generated.

This chapter describes the settings for each S-register.

S-register values

The format for displaying the value of an S-register is:

ATSn?

where **n** is the register number. After you type in the register press **Enter**.

The format for modifying the value of an S-register is:

ATSn=r

where **n** is the register number, and **r** is the new register value. After you type in the register and its new value press **Enter**.

NOTE: *Some registers vary from one country/region to another.*

S0 Auto answer ring number

This register determines the number of rings the modem will count before automatically answering a call. Enter 0 (zero) if you do not want the modem to automatically answer at all. When disabled, the modem can only answer with an ATA command.

Range: 0-255

Default: 0

Units: rings

S1 Ring counter

This register is read only. The value of S1 is incremented with each ring. If no ring occurs over a six-second interval, this register is cleared.

Range: 0-225

Default: 0

Units: rings

S2 AT escape character (user defined)

This register determines the ASCII values used for an escape sequence. The default is the + character. The escape sequence allows the modem to exit data mode and enter command mode when on-line. Values greater than 127 disable the escape sequence.

Range: 0-255, ASCII decimal

Default: 43

Units: ASCII

S3 Command line termination character (user defined)

This register determines the ASCII values as the carriage return character. This character is used to end command lines and result codes.

Range: 0-127, ASCII decimal

Default: 13 (carriage return)

Units: ASCII

S4 Response formatting character (user defined)

This register determines the ASCII value used as the line feed character. The modem uses a line feed character in command mode when it responds to the computer.

Range: 0-127, ASCII decimal

Default: 10 (line feed)

Units: ASCII

S5 Command line editing character (user defined)

This register sets the character recognized as a backspace and pertains to asynchronous only. The modem will not recognize the backspace character if it is set to a value that is greater than 32 ASCII. This character can be used to edit a command line. When the echo command is enabled, the modem echoes back to the local DTE the backspace character, an ASCII space character, and a second backspace character. This means a total of three characters are transmitted each time the modem processes the backspace character.

Range: 0-127, ASCII decimal

Default: 8 (backspace)

Units: ASCII

S6 Wait before dialing

This register sets the length of time, in seconds, that the modem must wait (pause) after going off-hook before dialing the first digit of the telephone number. The modem always pauses for a minimum of two seconds, even if the value of S6 is less that two seconds. The wait for dial tone call progress feature (W dial modifier in the dial string) will override the value in register S6. This operation, however, may be affected by some ATX options according to country/region restrictions. In some countries/regions, S6 will set dial tone detect time.

Range: 3-255

Default: 3

Units: seconds

S7 Connection completion time-out

This register sets the time, in seconds, that the modem must wait before hanging up because carrier is not detected. The timer is started when the modem finishes dialing (originate), or goes off-hook (answer). In originate mode, the timer is reset upon detection of an answer tone if allowed by county restriction. The timer also specifies the wait for silence time for the @ dial modifier in seconds. S7 is not associated with the W dial modifier.

Range: 1-255

Default: 50

Units: seconds

S8 Comma pause time

This register sets the time, in seconds, that the modem must pause when it encounters a comma (,) in the dial command string. In some countries/regions, S8 will set both wait before dialing and comma pause time.

Range: 0-255

Default: 2

Units: seconds

S11 DTMF dialing speed

This register determines the dialing speed which is prefixed for each country/region.

Range: 50-255

Default: 95

Units: .001 seconds

S12 Escape guard time

This register sets the value (in 20 millisecond increments) for the required pause after the escape sequence.

Range: 0-255

Default: 50

Units: .02 seconds

S37 Dial line rate

S37 = 0 (default)	maximum modem speed
S37 = 1	reserved
S37 = 2	1200/75 bps
S37 = 3	300 bps
S37 = 4	reserved
S37 = 5	1200 bps
S37 = 6	2400 bps
S37 = 7	4800 bps
S37 = 8	7200 bps
S37 = 9	9600 bps
S37 = 10	12000 bps
S37 = 11	14400 bps
S37 = 12	16800 bps
S37 = 13	19200 bps
S37 = 14	21600 bps
S37 = 15	24000 bps
S37 = 16	26400 bps
S37 = 17	28800 bps
S37 = 18	31200 bps
S37 = 19	33600 bps

AT command set result codes

The following table shows the result codes.

The result code summary

Result Code	Numeric	Description
OK	0	Command executed
CONNECT	1	Modem connected to line
RING	2	A ring signal has been detected
NO CARRIER	3	Modem lost carrier signal, or does not detect carrier signal, or does not detect answer tone
ERROR	4	Invalid command
CONNECT 1200 EC*1	5	Connection at 1200 bps
NO DIAL TONE	6	No dial tone detected
BUSY	7	Busy signal detected
NO ANSWER	8	No quiet answer
CONNECT 2400 EC*1	10	Connection at 2400 bps
CONNECT 4800 EC*1	11	Connection at 4800 bps
CONNECT 9600 EC*1	12	Connection at 9600 bps
CONNECT 14400 EC*1	13	Connection at 14400 bps
CONNECT 19200 EC*1	14	Connection at 19200 bps
CONNECT 7200 EC*1	24	Connection at 7200 bps
CONNECT 12000 EC*1	25	Connection at 12000 bps
CONNECT 16800 EC*1	86	Connection at 16800 bps
CONNECT 300 EC*1	40	Connection at 300 bps
CONNECT 21600 EC*1	55	Connection at 21600 bps
CONNECT 24000 EC*1	56	Connection at 24000 bps
CONNECT 26400 EC*1	57	Connection at 26400 bps
CONNECT 28800 EC*1	58	Connection at 28800 bps
CONNECT 31200 EC*1	59	Connection at 31200 bps
CONNECT 33600 EC*1	60	Connection at 33600 bps

Result Code	Numeric	Description
DELAYED*2	88	Delay is in effect for the dialed number
BLACKLISTED*2	89	Dialed number is blacklisted
BLACKLIST FULL*2	90	Blacklist is full

*1: *EC only appears when the Extended Result Codes configuration option is enabled. EC is replaced by one of the following symbols, depending upon the error control method used:*

V.42bis - V.42 error control and V.42bis data compression.

V.42 - V.42 error control only.

MNP 5 - MNP class 4 error control and MNP class 5 data compression.

MNP 4 - MNP class 4 error control only.

NoEC - No error control protocol.

**2: In some countries/regions, these result codes may not appear.*

V.90

The TOSHIBA internal modem uses V.90 technology. The modem is capable of downstream speeds of 56Kbps (kilobits per second) when connected to an Internet service provider that supports V.90. As with any modem, the actual throughput (speed of data transfer) depends on analog telephone line conditions, which can vary considerably. Therefore, many users will experience throughput in the range of 32-44Kbps under normal telephone line conditions. Upstream data flows at the V.34 rate.

> ***NOTE:*** *V.90 rates can be achieved only when one V.90 capable modem is connected to another. The TOSHIBA Internal modem will select automatically V.34 if the remote modem lacks V.90 capability or if a combination of network and/or phone line conditions prevent V.90 connection.*

V.90 mode

Function	Transmission speed
Data V.90	From 56K (maximum) to 28Kbps (minimum) Reception only

Table E-1 Result codes for a V.90 connection

No.	Result code	Description
70	CONNECT 32000 EC*	Connection at 32000 bits/s
72	CONNECT 36000 EC*	Connection at 36000 bits/s
74	CONNECT 40000 EC*	Connection at 40000 bits/s
76	CONNECT 44000 EC*	Connection at 44000 bits/s
78	CONNECT 48000 EC*	Connection at 48000 bits/s
80	CONNECT 52000 EC*	Connection at 52000 bits/s
82	CONNECT 56000 EC*	Connection at 56000 bits/s
100	CONNECT 28000 EC*	Connection at 28000 bits/s
101	CONNECT 29333 EC*	Connection at 29333 bits/s
102	CONNECT 30666 EC*	Connection at 30666 bits/s
103	CONNECT 33333 EC*	Connection at 33333 bits/s
104	CONNECT 34666 EC*	Connection at 34666 bits/s
105	CONNECT 37333 EC*	Connection at 37333 bits/s
106	CONNECT 38666 EC*	Connection at 38666 bits/s
107	CONNECT 41333 EC*	Connection at 41333 bits/s
108	CONNECT 42666 EC*	Connection at 42666 bits/s
109	CONNECT 45333 EC*	Connection at 45333 bits/s
110	CONNECT 46666 EC*	Connection at 46666 bits/s
111	CONNECT 49333 EC*	Connection at 49333 bits/s
112	CONNECT 50666 EC*	Connection at 50666 bits/s
113	CONNECT 53333 EC*	Connection at 53333 bits/s
114	CONNECT 54666 EC*	Connection at 54666 bits/s

* EC stands for the Error Control method, which appears only when the extended result codes configuration option is enabled. EC is replaced by one of the following symbols, depending on the error control method used.

V42bis	V.42 error control and V.42bis data compression
V42	V.42 error control only
NoEC	No error control protocol

AT Command

-V90=* V.90 Dial Line Rate

-V90 sets the maximum V.90 downstream that the modem attempts to connect.

-V90=0 V.90 disabled

-V90=1 V.90 enabled: automatic speed selection - maximum modem speed (default)

Wireless LAN

This document is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

About TOSHIBA Wireless solution

The Wireless LAN card Kit enables you to:

- Connect your computer to a peer-to-peer workgroup of Wireless computing devices.
- Connect your computer to a Local Area Network (LAN) Infrastructure that includes Wireless LAN Access Points, or other IEEE802.11 compliant LAN systems.
- Expand the capabilities of your Wireless LAN Access Points, to support Wireless devices that have been equipped with Wireless LAN card.

NOTE: *The internal Wireless LAN card can't be used with the TOSHIBA Wireless LAN PC card.*

Peer-to-peer workgroup

The peer-to-peer workgroup configuration enables you to quickly set up a small Wireless workgroup, where the workgroup participants can exchange files using features such as *Files and Printer Sharing* as supported by Microsoft Networking.

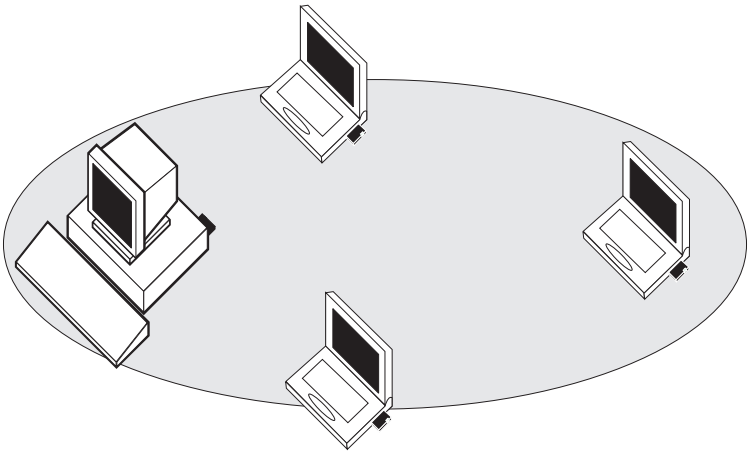


Figure F-1 Peer-to-peer Wireless workgroup

You can use this option to set up a temporary or ad-hoc network in environment where no access points are available, for example in Small Office/Home Office (SOHO) environments.

As long as the stations are within range of one another, this is the easiest and least expensive way to set up a Wireless network.

Enterprise networking

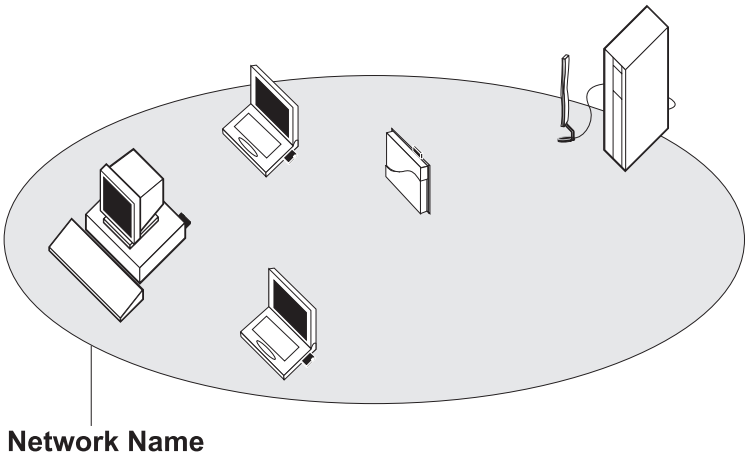


Figure F-2 Stand-alone Wireless LAN

With the Wireless LAN Access Points you can connect to a corporate Local Area Network (LAN) infrastructure to have Wireless access to all network facilities. LAN Infrastructures may either be.

- Stand-alone Wireless LANs as pictured in Figure F-2

- Wireless network infrastructures connected to an existing Ethernet network as pictured in Figure F-3.

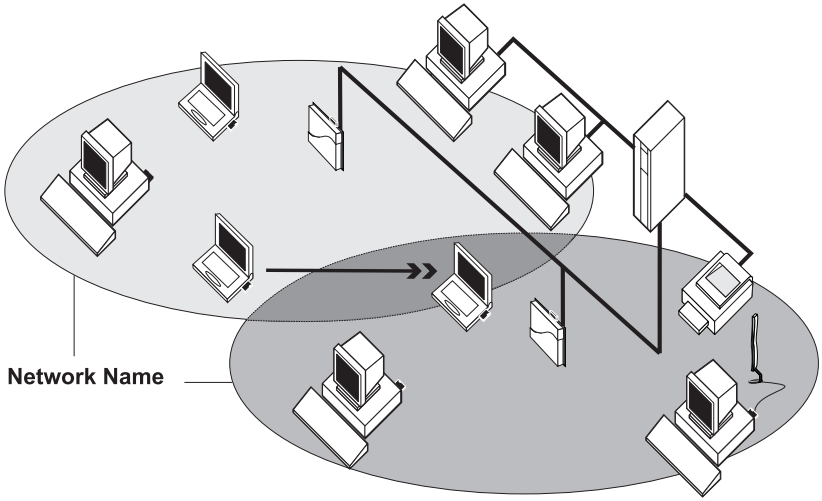


Figure F-3 LAN Infrastructure

Easy configuration

The Wireless LAN card functions like any standard wired Ethernet card except it gives you the freedom of Wireless connections.

Where an Ethernet card requires a cable connection to a hub and/or patch panel, the cable physically limits the location of the wired connection.

Expanding or re-designing your network is easy. A Wireless LAN allows you connect your computer to a Local Area Network (LAN) from anywhere within the Wireless coverage area.

> ***NOTE:*** *The Wireless LAN card is a radio product. Refer to the flyer* Information to the User *for regulatory information that may apply in your country/region.*

Wireless LAN card features

The TOSHIBA Wireless LAN mini-PCI card is a Wireless network card that fits into a mini-PCI Type IIIA slot.

Wireless LAN card types

The Wireless LAN card is a Wireless network card that complies with the IEEE 802.11 standard on Wireless LANs (Revision B). The Wireless LAN card supports data rates up to 11 Mbit/s.

- Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA). This means that your Wireless hardware will communicate with other vendors' IEEE 802.11 compliant Wireless LAN products.

- Fully compatible with any other Wireless LAN system based on Direct Sequence Spread Spectrum (DSSS) radio technology that complies with the IEEE 802.11 standard on Wireless LANs (Revision B).

Wireless LAN cards

The Wireless LAN card supports the following Wireless LAN features:

- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.
- Frequency Channel Selection (2.4 GHz).
- Roaming over multiple channels.
- Card Power Management.
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm.

Basic settings for enterprise networks

> ***NOTE:*** *For Windows XP, refer to the operating system help files for procedures on connecting to an Enterprise Network.*

If you wish to connect to an Enterprise Network, use the Add/Edit Configuration Profile window to:

1. Click the **Start** button from the Windows task bar.
2. Click **Settings**, and then **Control Panel**.
3. In the **Control Panel** window, double-click the **Wireless Network** icon.
4. Select to connect to an **Access Point**.

5. Set the correct **Network Name**.

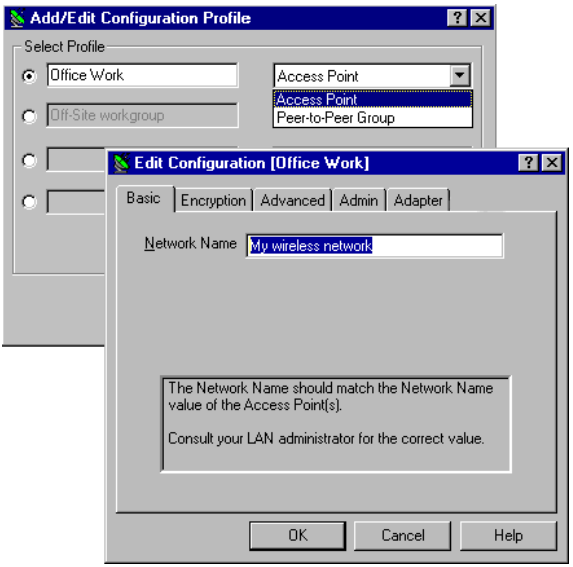


Figure F-4 Edit Configuration window

6. In the field **`Network Name`**, define the name of the Wireless network to which you want to connect. You can either use:
   - The value **ANY**

     To connect to any Wireless LAN network in the vicinity of your computer.
   - An exact value to connect to a specific network.

     Consult your LAN administrator for the value that applies to your network.

     The Network Name can be any alphanumeric string in the range of "a" to "z", "A" to "Z" and "0" to "9" with a maximum of 32 characters.
7. Click **OK** to confirm and return to the **Add/Edit Configuration Profile** window.
8. Click **OK** again to finish.

Basic settings for peer-to-peer workgroups

> ***NOTE:*** *For Windows XP, refer to the operating system help files for procedures on connecting to an Enterprise Network.*

If you wish to connect to a peer-to-peer workgroup, use the Add/Edit Configuration Profile window to:

1. Click the **Start** button from the Windows task bar.
2. Click on **Settings**, and then on **Control Panel**.
3. In the **Control Panel** window, double-click the **Wireless Network** icon.
4. Select to connect to a **peer-to-peer workgroup**.
5. Set the correct **Network Name** and **Encryption Key.**

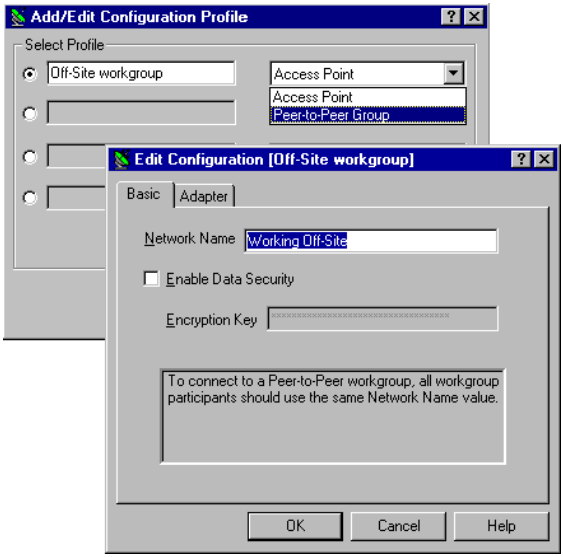


Figure F-5 Edit Configuration window : peer-to-peer

6. In the field **`Network Name`**, define the name of the Wireless network to which you want to connect.

   The Network Name can be any alphanumeric string in the range of "a" to "z," "A" to "Z" and "0" to "9" with a maximum of 32 characters (case-sensitive).

- If there is already a peer-to-peer group with this name available, your computer will automatically connect to this workgroup.
- If there is not yet such a group available, your computer will automatically start one with this name.

7. Click **OK** to confirm and return to the **Add/Edit Configuration Profile** window.
8. Click **OK** again to finish.

Working with Wireless and Windows

This chapter provides general information about:

- Using your Wireless LAN card
- Using the Client Manager
- View Wireless link quality
- View/modify Wireless LAN card settings

Using your Wireless LAN card

Radio antennas

The radio and antennas of your Wireless LAN card perform best in an open environment with as few obstacles as possible.

To achieve the maximum range for Wireless communications, do not cover the top panel and with objects such as books or thick stacks of paper.

View other computers

When multiple Wireless LAN stations are up-and-running in your Wireless network, you can use the procedure described below to display the other computers on the network:

1. Start Windows Explorer.
2. Scroll down the list of files and folders to find the item **Network Neighborhood**.
3. Double-click the **Network Neighborhood** item to display all stations in your Microsoft Networking Group.
4. To display other workgroups in the network environment, double-click the **Entire Network** icon.

If you cannot find other Wireless LAN networked computers, verify whether the other Wireless LAN computers are:

- Powered up and logged onto the network.
- Configured to operate with identical Microsoft Network settings concerning:
  - Networking Protocol
  - Wireless Network Name
  - Workgroup Name

To view or modify the **Station Name** or **Workgroup** of your computer, proceed as follows:

1. Click **Start** on the Windows task bar.
2. Click **Settings**, and then click **Control Panel**.
3. In the **Control Panel** window, double-click the **Network** icon.
4. In the **Network Settings** window, select the **Identification** tab.

You can verify and change the **Station Name** or **Workgroup** parameters.

> ***NOTE:*** *You have to restart your computer before changes to the Network Settings will be effected.*

To verify the radio connection with other stations refer to *View Wireless Link Quality*.

Using the Client Manager

If you installed the Wireless LAN Client Manager you can use the Client Manager to:

- Verify the quality of your Wireless connection to the network.
- View/Modify the configuration settings of your Wireless LAN card.

The Client Manager icon is displayed in the **System Tray** on your Windows task bar at the right-side on the bottom of your screen, indicating that the Client Manager programs is running.

- Click the icon once with your left mouse button to retrieve a more detailed status overview.
- Click the icon once with your right mouse button to display a menu with more options.

View Wireless link quality

You can use Client Manager icon on the Windows task bar to verify the link quality of your network connection.

An overview of all possible icons is given in Table1. When the Client Manager icon is not indicating excellent or good radio connection, act as described in Table F-1.

Table F-1 Client Manager Icon

Icon	Description	Color
	Excellent radio connection	Green
	Good radio connection	Green
	Marginal radio connection: The radio signal is weak. Move closer to the Wireless LAN Access Point.	Yellow
	Poor radio connection: The radio signal is very weak. Save your files and move closer to the Wireless LAN Access Point.	Red
	No radio connection because: • Looking for initial connection, or • You have moved out of range of the network.	Red
	Peer-to Peer network connection	Blank

View/modify Wireless LAN card settings

If you would like to view or modify Wireless LAN parameters, for example because you would like to connect to another network or type of network, proceed as follows:

1. Right-click on the Client Manager icon on the Windows task bar.
2. From the menu, select **Configuration Profile**, see Figure F-6, and select:
   - **Add/Edit Profile** to add a new profile or to modify an existing profile.
   - **One of the existing profiles** (if present) to select a profile without viewing or modifying the settings.

After you selecting another profile, the card will use the new profile to connect to the Wireless network.

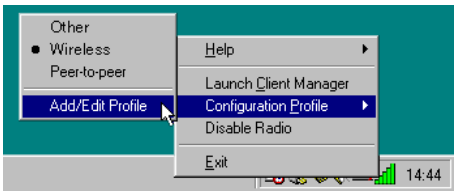


Figure F-6 Edit Wireless Configuration Settings

If your **Client Manager** icon is not visible, you have to start the **Client Manager** program again:

1. Click **Start** from the Windows task bar.
2. Select **Programs**, and then select the **TOSHIBA Wireless Solution** workgroup.
3. Next select **Client Manager** to start the Client Manager program.

Alternatively you can to change the card configuration via the Control Panel:

1. Click **Start** from the Windows task bar.
2. Click **Settings**, and then click **Control Panel**.
3. In the **Control Panel** window, double-click the **Wireless Network** icon.
4. If you select new parameters, click,
   - the **OK** button to confirm your changes, or
   - the **Cancel** button to ignore them.

Advanced configurations

NOTE: *For Windows XP, refer to the operating system help files for procedures on connecting to an Enterprise Network.*

Although your Wireless LAN card will work fine in most network environments with the *Basic Parameters*, you may wish to explore the advanced parameters options as displayed in the Wireless LAN card's **`Edit Configuration`** window. You can set advanced parameters only if your computer is connected to an existing network. Consult your LAN administrator for details.

Encryption window

The encryption tab enables you to define the encryption keys that your Wireless LAN card should use to:

- Decrypt Wireless messages received via its Wireless interface.
- Encrypt data that will be transmitted via the Wireless interface.

CAUTION: *Encryption needs to be the same for all Wireless LAN stations.*

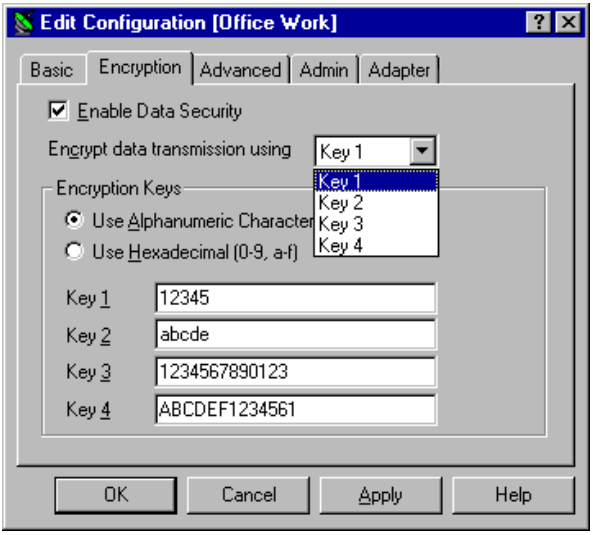


Figure F-7 Encryption window

You can identify up to four different key values to decrypt Wireless data, and select one of these keys to encrypt Wireless data transmissions.

Advanced window

Use this window to set advanced parameters.

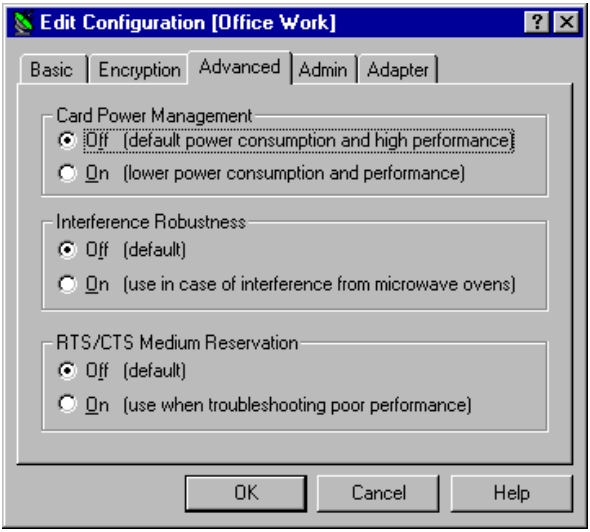


Figure F-8 Advanced window

Card Power Management	To extend the battery life of (mobile) Wireless devices.
Interference Robustness	Can be activated in exceptional cases when trouble-shooting slow performance of a Wireless LAN network that could be related to in-band interference from devices such as microwave ovens.
RTS/CTS Medium	This parameter can be activated: • If the density of Wireless LAN stations and access points is very low • As a result of poor network performance due to excessive frame collisions at the access points

Admin window

You can set the following parameters in the Admin window.

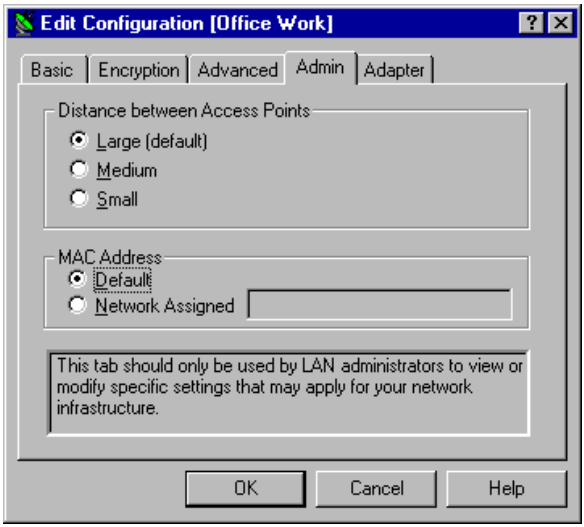


Figure F-9 Admin parameters

Distance between access points	Depending on the number of access points in a Wireless LAN network this parameter controls the network performance.
MAC address	Can be activated in exceptional cases when troubleshooting slow performance of the Wireless LAN network that could be related to in-band interference from devices such as microwave ovens.

Card specifications

Table F-2 Physical specifications

Form Factor	Mini-PCI TypeIIIA	
Dimensions		
Weight		
Temperature and Humidity		
Operation	0 to 55 C	Maximum humidity 95%
Transit	-20 to 70 C	15 to 95% (no condensation)
Storage	-10 to 60 C	10 to 90% (no condensation)

Although the card may still operate in the range of –20 to 70 C, operation outside the range of 0 to 55 C may no longer be according to specifications.

Table F-3 Power Characteristic

Doze Mode	45mA
Receive Mode	250mA
Transmit Mode	350mA
Power Supply	3.3V

Table F-4 Networking Characteristics

Compatibility	■ IEEE 802.11 Standard for Wireless LANS (DSSS) ■ Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA)
Network Operating System	■ Microsoft Windows® Networking
Host Operating System	Microsoft Windows® NT v4.0: ■ NDIS4 Miniport Driver Microsoft Windows® 98/Me/2000 ■ NDIS5 Miniport Driver Microsoft Windows® XP ■ NDIS5.1 Miniport Driver
Media Access	CSMA/CA (Collision Avoidance) with
Protocol Data Rate	Acknowledgment (ACK) ■ High 11 Mb/s ■ Medium 5.5 Mb/s ■ Standard 2 Mb/s ■ Low 1 Mb/s The cards use an automatic Transmit Rate Select mechanism.

Radio characteristics

Radio characteristics of Wireless LAN cards may vary according to:

- Country/region where the product was purchased
- Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN networking products have been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose limitations on the use of Wireless communication equipment.

> ***NOTE:*** *Refer to the flyer* Information to the User *for regulatory information that may apply in your country/region.*

Table F-5 Radio characteristics

R-F Frequency Band	2.4GHz (2400-2483.5 MHz)			
Modulation Technique	Direct Sequence Spread Spectrum ■ CCK for High & Medium Transmit Rate ■ DQPSK for Standard Transmit Rate ■ DBPSK for Low Transmit Rate			
Spreading	11-chip Barker Sequence			
Bit Error Rate (BER)	Better than 10^{-5}			
Nominal Output Power	15 dBm			
Transmit Rate	High Speed 11 Mb/s	Medium Speed 5.5 Mb/s	Standard Speed 2 Mb/s	Low Speed 1Mb/s
Receiver Sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The range of the Wireless signal is related to the Transmit Rate of the Wireless communication. Communications at lower Transmit range may travel longer distances.

> ***NOTE:*** *The range values listed in Table F-5 are typical distances as measured at the TOSHIBA Wireless LAN laboratories. These values provide rule-of-thumb guides. They may vary according to the actual radio conditions at the location where the Wireless LAN product is installed.*

- The range of your Wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also affected by obstacles in the signal path of the radio that may either absorb or reflect the radio signal.

Table F-5 lists the typical ranges when used indoors in office environments such as the following:

- In **Open Office environments**, where antennas can see each other, i.e. there are no physical obstructions between them.
- In **Semi-open Office environments**, where work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.

- In **Closed Office environments**, work space is separated by floor-to-ceiling solid walls.

Supported frequency sub-bands

Subject to the radio regulations that apply in your country/region, your Wireless LAN card may support a different set of 2.4 GHz channels (see Table F-6).

Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in your country/region.

Table F-6 Wireless IEEE 802.11 Channels Sets

Frequency Range	2400-2483.5 MHz
Channel ID	
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	**2457***
11	2462

* Factory-set default channels

When installing Wireless LAN cards, the channel configuration is managed as follows:

- For Wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.
- For Wireless LAN cards installed in Wireless clients operating in a peer-to-peer mode, the card will use the default channel 10.
- In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country/region in which it is used. All cords must meet the following specifications:

Length:	Minimum 2 meters
Wire size:	Minimum 0.75 mm^2
Current rating:	Minimum 2.5 amperes
Voltage rating:	125 or 250 VAC (depending on country/region's power standards)

Certification agencies

U.S. and Canada: UL listed and CSA certified

No. 18 AWG, Type SVT or SPT-2 two conductor

Europe:

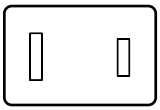
Austria:	OVE	Italy:	IMQ
Belgium:	CEBEC	The Netherlands:	KEMA
Denmark:	DEMKO	Norway:	NEMKO
Finland:	SETI	Sweden:	SEMKO
France:	UTE	Switzerland:	SEV
Germany:	VDE	United Kingdom:	BSI
Australia:	AS		
Japan:	DENANHO		

In Europe, power cords must be VDE type, H05VVH2-F and two conductor.

For the United States and Canada, plug configuration must be a 2-15P (250 V) or 1-15P (125 V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

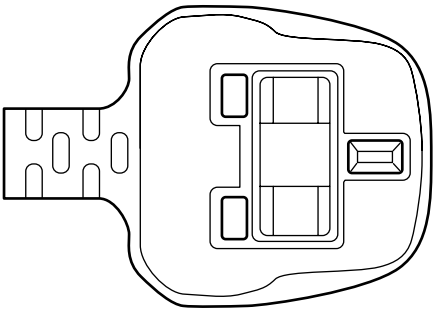
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

USA and Canada



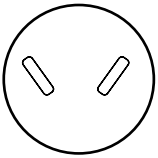
UL approved
CSA approved

United Kingdom



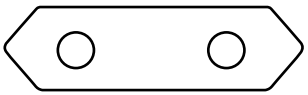
BS approved

Australia



AS approved

Europe



Approved by the appropriate agency

Internal Modem Guide

This appendix describes how to install and the remove the internal modem.

CAUTIONS: *1. Do not remove the base cover except to remove or install the internal modem or to check the PTT label.*

2. Do not disassemble the computer beyond the steps described in this instruction or touch any components not specifically described.

3. Always remove the Battery Pack and disconnect the AC Adaptor before removing the base cover.

4. Be careful not to drop any screws or other foreign matter into the computer. Metal or other foreign matter can damage the computer.

Installing the internal modem

NOTE: *The internal modem is preinstalled. The following is for information only.*

To install the modem board, follow the steps below.

1. Save your data, quit Windows and turn off the power.
2. Disconnect the AC Adaptor and any other peripheral devices.
3. Turn the computer upside down and remove the Battery Pack.
4. Remove two screws securing the HDD pack cover and remove the HDD pack.
5. Remove fifteen screws (one screw has a rubber cover). Do not remove the screws securing the memory module.
6. Remove the bottom cover.
7. Connect the modem cable.
8. Install the modem and secure it with two screws.
9. Seat the bottom cover and secure fifteen screws.

10. Insert the HDD pack into the slot.
11. Secure the HDD pack cover with two screws.
12. Install the Battery Pack.

Removing the internal modem

To remove the internal modem.

1. Save your data, quit Windows and turn off the power.
2. Disconnect the AC Adaptor and any other peripheral devices.
3. Turn the computer upside down and remove the Battery Pack.
4. Remove two screws securing the HDD pack cover and remove the HDD pack.
5. Remove fifteen screws (one screw has a rubber cover). Do not remove the screws securing the memory module.
6. Remove the bottom cover. You can check the PPT label at this point.
7. Remove two screws securing the modem and remove it.
8. Disconnect the modem cable.
9. Secure fifteen screws.
10. Insert the HDD pack into the slot.
11. Secure the HDD pack cover with two screws.
12. Install the Battery Pack.

The internal modem is approved by Japan Approvals Institute for Telecommunications Equipment.

A00-0940JP

Parts Numbers

The computer configuration and parts numbers, printed on a label on the bottom of the computer, indicate the CPU, LCD, memory, HDD and communication devices.

Configurations

The following table shows the computer configuration indicated on a label. Shaded areas indicate abbreviations used on the label. The explanations are to the left of the shading. Abbreviations are not limited to those in this chart. They may change without notice.

CPU		LCD		Memory		HDD		Communication	
750*	P750	12"TFT-XGA	12TX	256MB	256M	20G	20	Modem/LAN	M/L
								Modem/LAN/Wireless LAN	M/L/WL

* Figures indicate the CPU operating speed in megahertz. For example, P750 means Ultra Low Voltage Mobile Intel® Pentium® III processor 750 MHz-M .

Glossary

The terms in this glossary cover the topics discussed in this manual. Alternate naming is included for reference.

Abbreviations

AC: alternating current

ANSI: American National Standards Institute

APM: advanced power manager

ASCII: American Standard Code for Information Interchange

BIOS: basic input output system

CMOS: complementary metal-oxide semiconductor

CPU: central processing unit

CRT: cathode ray tube

DAA: Data Access Arrangement

DC: direct current

DDC: display data channel

DMA: direct memory access

DOS: disk operating system

DVI: Digital Visual Interface

ECP: extended capabilities port

EGA: enhanced graphics adaptor

FDD: floppy disk drive

FIR: fast infrared

HDD: hard disk drive

IDE: integrated drive electronics

I/O: input/output

IrDA: Infrared Data Association

IRQ: interrupt request

KB: kilobyte

LCD: liquid crystal display

LED: light emitting diode

LSI: large scale integration

MDA: monochrome display adaptor

MS-DOS: Microsoft Disk Operating System

OCR: optical character recognition (reader)

PCB: printed circuit board

PCI: peripheral component interconnect

RAM: random access memory

RGB: red, green, and blue

ROM: read only memory

RTC: real time clock.

SCSI: small computer system interface

SIO: serial input/output

SVGA: super video graphics adaptor

TFT: thin-film transistor

UART: universal asynchronous receiver/transmitter

USB: Universal Serial Bus

(Abbreviations continued)

VESA: Video Electronic Standards Association

VGA: video graphics array

VRT: voltage reduction technology

A

adaptor: A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This term also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

allocate: To assign a space or function for a specific task.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analog signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

ANSI: American National Standards Institute. An organization established to adopt and define standards for a variety of technical disciplines. For example, ANSI defined the ASCII standard and other information processing requirements.

antistatic: A material used to prevent the buildup of static electricity.

application: A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing, and games, etc.

ASCII: American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

async: Short for asynchronous.

asynchronous: Lacking regular time relationship. As applied to computer communications, asynchronous refers to the method of transmitting data that does not require a steady stream of bits to be transmitted at regular time intervals.

AUTOEXEC.BAT: A batch file that executes a series of MS-DOS commands and programs each time you start the computer.

B

backup: A duplicate copy of files kept as a spare in case the original is destroyed.

batch file: A file that can be executed from the system prompt containing a sequence of operating system commands or executable files. See also AUTOEXEC.BAT.

binary: The base two number system composed of zeros and ones (off or on), used by most digital computers. The right most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. *See also* ASCII.

BIOS: Basic Input Output System. The firmware that controls data flow within the computer. *See also* firmware.

bit: Derived from "binary digit," the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. *See also* byte.

board: A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

boot: Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer's memory.

bps: Bits per second. Typically used to describe the data transmission speed of a modem.

buffer: The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

bus: An interface for transmission of signals, data or electric power.

byte: The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

C

cache memory: High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.

capacity: The amount of data that can be stored on a magnetic storage device such as a diskette (floppy disk) or hard disk. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes and megabytes (MB), where one MB = 1024KB.

card: Synonym for board. *See* board.

CardBus: An industry standard bus for 32-bit PC Cards.

CD-ROM: A Compact Disk-Read Only Memory is a high capacity disk that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disk.

character: Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

chassis: The frame containing the computer.

chip: A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

CMOS: Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

cold start: Starting a computer that is currently off (turning on the power).

commands: Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.

communications: The means by which a computer transmits and receives data to and from another computer or device.

compatibility: 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred. 2) the ability of one device to connect to or communicate with another system or component.

components: Elements or parts (of a system) which make up the whole (system).

computer program: A set of instructions written for a computer that enable it to achieve a desired result.

computer system: A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.

configuration: The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the HW Setup program to control your system configuration.

control keys: A key or sequence of keys you enter from the keyboard to initiate a particular function within a program.

controller: Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).

co-processor: A circuit built into the processor that is dedicated to intensive math calculations.

CPS: Characters per second. Typically used to indicate the transmission speed of a printer.

CPU: Central processing unit. The portion of the computer that interprets and executes instructions.

CRT: Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.

cursor: A small, blinking rectangle or line that indicates the current position on the display screen.

D

data: Information that is factual, measurable or statistical that a computer can process, store, or retrieve.

data access arrangement: Circuitry that isolates a modem or other device from telephone lines.

data bits: A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.

DC: Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.

default: The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.

delete: To remove data from a disk or other data storage device. Synonymous with erase.

device driver: A program that controls communication between a specific peripheral device and the computer. The CONFIG.SYS file contains device drivers that MS-DOS loads when you turn the computer on.

dialog box: A window that accepts user input to make system settings or record other information.

disk drive: The device that randomly accesses information on a disk and copies it to the computer's memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.

disk storage: Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.

diskette: A removable disk that stores magnetically encoded data used on a microcomputer. Also called floppy disk.

display: A CRT, plasma screen, LCD, or other image producing device used to view computer output.

documentation: The set of manual and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.

DOS: Disk operating system. *See* operating system.

driver: A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).

E

echo: To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then retransmits the data to printer, the printer is said to echo the CRT.

erase: *See* delete.

escape: 1) A code (ASCII code 27), signaling the computer that what follows are commands; used with peripheral devices such as printers and modems. 2) A means of aborting the task currently in progress.

escape guard time: A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

execute: To interpret and execute an instruction.

Extended Capability Port: An industry standard that provides a data buffer, switchable forward and reverse data transmission, and run length encoding (RLE) support.

F

fast infrared: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

file: A collection of related information; a file can contain data, programs, or both.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

fixed disk: *See* hard disk.

floppy disk: *See* diskette.

floppy disk drive (FDD): An electromechanical device that reads and writes to floppy disks. *See also* diskette.

Fn-esse: A TOSHIBA utility that lets you assign functions to hotkeys.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labeled **F1** through **F12** that tell the computer to perform certain functions.

G

gigabyte (GB): A unit of data storage equal to 1024 megabytes. *See also* megabyte.

GND: Ground. An RS-232C signal used in the exchange of data between a computer and serial device.

graphics: The use of drawings, pictures, or other images, such as charts or graphs, to present information.

H

hard disk: A non-removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

hard disk drive (HDD): An electromechanical device that reads and writes a hard disk. *See also* hard disk.

hardware: The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. *See also* software and firmware.

hertz: A unit of wave frequency that equals one cycle per second.

hexadecimal: The base 16 numbering system composed of the digits 0 through 9 and the letters A, B, C, D, E, and F.

host computer: The computer that controls, regulates, and transmits information to a device or another computer.

hot dock/undock: Connecting or disconnecting a device to or from the computer while the computer's power is turned on.

hotkey: The computer's feature in which certain keys in combination with the extended function key, **Fn**, can be used to set system parameters, such as speaker volume.

HW Setup: A TOSHIBA utility that lets you set the parameters for various hardware components.

I

icon: A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

infrared port: A cableless communications capable of using infrared signals to send serial data.

input: The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

instruction: Statements or commands that specify how to perform a particular task.

interface: 1) Hardware and/or software components of a system used specifically to connect one system or device to another. 2) To physically connect one system or device to another to exchange information. 3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

interrupt request: A signal that gives a component access to the processor.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

J

jumper: A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

K

K: Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

KB: *See* kilobyte.

keyboard: An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

kilobyte (KB): A unit of data storage equal to 1024 bytes. *See also* byte and megabyte.

L

level 2 cache: *See* cache.

Light Emitting Diode (LED): A semiconductor device that emits light when a current is applied.

Liquid Crystal Display (LCD): Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets darkens the liquid crystal to provide contrast to lighted portions of the display.

LSI: Large Scale Integration. 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip. 2) An integrated circuit that uses the large scale integration.

M

main board: See motherboard.

megabyte (MB): A unit of data storage equal to 1024 kilobytes. *See also* kilobyte.

megahertz: A unit of wave frequency that equals 1 million cycles per second. *See also* hertz.

menu: A software interface that displays a list of options on the screen. Also called a screen.

microprocessor: A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

mode: A method of operation, for example, the boot mode or the resume mode.

modem: Derived from modulator/demodulator, a device that converts (modulates) digital data for transmission over telephone lines and then converts modulated data (demodulates) to digital format where received.

monitor: A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. *See* CRT.

motherboard: A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions. Sometimes called a main board.

N

non-system disk: A formatted diskette (floppy disk) you can use to store programs and data but you cannot use to start the computer. *See* system disk.

nonvolatile memory: Memory, usually read-only (ROM), that is capable of permanently storing information. Turning the computer's power off does not alter data stored in nonvolatile memory.

numeric keypad overlay: A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

O

OCR: Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

OCR wand: A device that reads, using an optical device, hand written or machine printed symbols into a computer. *See also* OCR.

online state: A functional state of a peripheral device when it is ready to receive or transmit data.

operating system: A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

output: The results of a computer operation. Output commonly indicates data 1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

P

parity: 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1. 2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

password: A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user, supervisor and eject.

pel: The smallest area of the display that can be addressed by software. Equal in size to a pixel or group of pixels. *See* pixel.

peripheral component interconnect: An industry standard 32-bit bus.

peripheral device: An I/O device that is external to the central processor and/or main memory such as a printer or a mouse.

pixel: A picture element. The smallest dot that can be made on a display or printer. Also called a pel.

plug and play: A capability with Windows that enables the system to automatically recognize connections of external devices and make the necessary configurations in the computer.

port: The electrical connection through which the computer sends and receives data to and from devices or other computers.

printed circuit board (PCB): A hardware component of a processor to which integrated circuits and other components are attached. The board itself is typically flat and rectangular, and constructed of fiberglass, to form the attachment surface.

program: A set of instructions a computer can execute that enables it to achieve a desired result. See also application.

prompt: A message the computer provides indicating it is ready for or requires information or an action from you.

R

Radio frequency interference (RFI) shield: A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. TOSHIBA portable computers comply with Class B computing device regulations.

Random Access Memory (RAM): High speed memory within the computer circuitry that can be read or written to.

restart: Resetting a computer without turning it off (also called 'warm boot' or 'soft reset'). To restart the computer, press **Ctrl** + **Alt** + **Del** while the computer is on. See also boot.

RGB: Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive color (red, green, and blue) or port for using such a device. *See also* CRT.

RJ11: A modular telephone jack.

ROM: Read Only Memory**:** A nonvolatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

S

SCSI: Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

subpixel: Three elements, one red, one green and blue (RGB), that make up a pixel on the color LCD. The computer sets subpixels independently, each may emit a different degree of brightness. See also pixel.

synchronous: Having a constant time interval between successive bits, characters or events.

system disk: A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

T

terminal: A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

TFT: A color LCD technology that applies individual transistors to each pixel enabling fine display control and excellent screen legibility.

TOSHIBA Power Saver: A TOSHIBA utility that lets you set the parameters for various power-saving functions.

Touch pad: A pointing device integrated into the TOSHIBA computer palm rest.

TTL: Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

U

Universal Serial Bus: This serial interface lets you communicate with several devices connected in a chain to a single port on the computer.

V

VGA: Video graphics array is an industry standard video adaptor that lets you run any popular software.

volatile memory: Random access memory (RAM) that stores information as long as the computer is connected to a power source.

W

Warm dock/undock: Connecting or disconnecting a device to or from the computer while the computer is suspended.

warm start: Restarting or resetting a computer without turning it off.

window: A portion of the screen that can display its own application or document. Often used to mean a Microsoft Windows window.

Wireless LAN: A short-range radio technology designed to simplify wireless communication with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B).

write protection: A method for protecting a diskette (floppy disk) from accidental erasure.

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